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ABSTRACT

This document is designed as a comprehensive resource and guide for computer-using educators who wish to expand the scope and magnitude of their computer power through telecommunications. The major focus is on the microcomputer's ability to communicate with other microcomputers via telephone lines. Emphasis is placed upon information services and databases that are easily and economically feasible for both the professional educator and student to reach. Following an introduction, an in-depth discussion on the basic electronics underlying computer telecommunications is provided. Subsequent chapters are devoted to the educational uses of: (1) the CompuServe Information Service; (2) The Source; (3) Delphi; (4) Knowledge Index; (5) the Bibliographic Retrieval Service (BRS), focusing on BRS After/Dark; and (6) computerized bulletin board systems. Telephone numbers, addresses, and costs are included as they existed at the time of writing. Also included are many actual "screen dumps" (the actual contents of the monitor screen while online). In addition to describing the specific services available, topics of broad educational impact such as electronic mail and teleconferencing are discussed. (JN)

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MICROCOMPUTER TELECOMMUNICATION:

Bringing Education Online for an Expanded Classroom

by

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May 22, 1984

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INTRODUCTION

"Any sufficiently advanced technology is indistinguishable from magic." -Arthur C. Clarke

The Information Society is the evolutionary outcome of the progressive development and decentralization of computing technology and communications technology (Vaughan, 1982). Its basis lies in the technical ability to substitute symbolic electrical information for printed, visual, audible or other manifestation of physical information, and transmit it at near light-speed via electronic media. Its very nature defies physical boundaries. The ability to access and manipulate information will be one of the pivotal issues involved in the progressive evolution of our society as we move out of the industrial era and into the electronic. The isolated, protected, and highly conservative institutions we call public schools are on the verge of social and academic obsolescence. Instead of leading, schools now follow. Schools derive the benefit of society's technological advancements years after business and industry. The time has come to stop thinking of schools as having physical boundaries. If schools are going to lead the evolution of society instead of continuing to reflect its ancestral roots, we must begin to view a school's walls as only functioning to keep the rain out. We must teach our students the global, communication-oriented mindset that is going to dominate their adult lives as a result of exposively expanding electronic technology. The tiny, constantly out-of-date public school library is on its last legs unless it moves immediately to acquire online connections to superior resources. Public schools

will never receive the financial backing necessary to have first class printed, or audio-visual material collections. This author is concerned that we are continuing to seriously handicap our students by not connecting them with the sources of information they need and most certainly deserve. It is suggested that linking school districts together via microcomputers for the purpose of resource sharing is only one of a variety of measures we, as educators, can take to tear down the walls. When I think of going to the library, I don't think of using my school district's library, or even the local university's library. My first move is to go online with a major information service like Dialog or Bibliographic Retrieval Service where I can scan close to 95% of the collected body of human writing from the past fifteen years. Even if a physical library existed somewhere in the world that rivaled that quantity of current information, how many public school students could ever hope to visit it? With a properly equipped microcomputer, an educator need never again hear the time worn excuse, "I couldn't find anything in the library." As a biology teacher, I delight in taking students who complain they are suffering from "Information Deficiency Syndrome" (a common and contagious disease in public school children) and introducing them to an online database such as Medline or Biosis Previews. After even a ten minute session, most students are both astonished and encouraged at the amount of useful material they have literally at their fingertips. Many times I have been privileged to witness the despair of writing a research paper give way to the wide-eyed excitement of realizing one can command the instantaneous delivery of information

concerning even the most trivial of topics on a global level. Just because we, as students of a less electronically advanced time, had to endure the trials and tribulations of small libraries and manual typewriters is certainly no reason to deny the power of online databases and word processors to our students or to ourselves now. We must grow with our students, providing as many opportunities for them as possible. For if we do not lead, then surely we will be led.

PURPOSE

The purpose of this manuscript is to act as a comprehensive resource and guide for computer-using educators who wish to expand the scope and magnitude of their computing power through telecommunications. This work does not concern itself with the hard-wired networking of computers that is relatively common in our public schools. The focus here will be directed at capitalizing on a microcomputer's ability to communicate with other computers by way of telephone lines. The author assumes virtually no prior knowledge of telecommunications on the part of the reader. Thus, the following will appear tutorial in nature. After discussing <u>how</u> to go "online", we will examine <u>what</u> one can go online with. In other words, "Who's out there?" Emphasis is placed upon information services and databases that are easy and economically feasible for the both the professional educator and student to reach. For the terminally curious, it begins with an in-depth discussion of the basic electronics underlying computer telecommunications.

Individual chapters are devoted to the educational uses of CompuServe Information Service, The Source, Delphi, Dialog, Knowledge Index, and BRS After/Dark, as well as various and sundry computer bulletin board systems (CBBS's). Accurate at the time of writing, phone numbers, addresses, and costs are listed. In order to give the novice reader a clearer mental picture of each service discussed, many actual "screen dumps" (the actual contents of the monitor screen while online) are included. In addition to describing the specific services available, topics of broad educational impact such as electronic mail, and teleconferencing are discussed.

HOW DID WE GET HERE?

During the infancy of educational computing, the most common systems were often nothing more than dumb terminals which connected multiple users to a remotely situated mainframe via time-sharing. These so-called "dumb" terminals lacked any internal computing ability. They were simply extensions of the larger mainframe. They were connected to the host computer by existing phone lines. This allowed the computing educator to enter a program at a terminal, upload to a mainframe, have material processed, and the results quickly delivered back, or downloaded, to their teletype.

Our nation's drive to place a man on the moon by the end of the 1960's produced some truly remarkable technological spin-offs. Microcomputers are a perfect case in point. The Apollo missions necessitated light, compact, and self-contained

on-board computers to handle a myriad of navigational and maintenance tasks. In order to achieve tha goal, electrical engineers made great strides towards the microminiaturization of electronic components. Gone is the day of the temperamental vacuum tube. Tiny wafers of silicon have now reduced the size of the computer to that of an ordinary typewriter, and at the same time, improved speed and efficiency. Thus, the stand-alone, portable microcomputer was born. Seeing the financial and logistic benefits to microcomputers, many schools disconnected their phone lines and their teletypes were relegated to the district warehouse and the self-contained micro became the educational standard.

The preceding illustrates the irony that is the basis of this paper. When the educational community saw that a microcomputer could process a BASIC program all by itself, it saw no further use for the telephone. We were severely myopic in never seeing the link to the remote mainframe in its proper perspective. Business and industry were quick to utilize computer telecommunications, but education missed the boat entirely. An isolated microcomputer is like being a highly literate individual stranded on an uninhabited desert island. Without others to communicate ideas with, much of what we call human intellect is useless. Similarly, the microcomputer, however intrinsically remarkable, is operating at its fullest capacity only when it can call upon the assistance of its electronic kin.

Today, few educators would dispute the impact of computing on American education. Educational sales of micros continues to climb at an astonishing rate. However, think of the last school computer lab you visited. What did you see? In all probability, the basic units were composed of a motherboard, or central processing unit, a monitor/TV, and a disk drive or two. Obviously, many school districts purchased their computers en masse, usually at a discounted price for a prepackaged set of equipment. Maybe one or two of the systems were connected to a thermal or dot-matrix printer, but unfortunately this is the end of the shopping list for most educational hardware purchases. Evidently, educators want stand-alone computers, and that is exactly what they get. The educational meaning of the term "peripheral device" generally seems to include only things that enhance the isolation of the system. Memory expansion boards and language cards are very common extra-cost options. Unfortunately, these sorts of peripherals only seem to underscore the isolation of the computer. We have been making the microcomputer better and better at communicating less and less. The one piece of relatively inexpensive peripheral equipment very few schools are buying is the <u>modem</u> which is, in this author's opinion, the single most valuable peripheral device with which a microcomputer can be equipped.

THE AMAZING MODEM

Despite their amazing utility, modems are generally thought of as one of the "other" peripherals that many users consider only after they have purchased all of the disk drives, printers, color monitors, and joysticks they could ever want. As a case in point, a modem was what I purchased with my income tax refund after I had acquired everything else I thought I might like to add to my system. In retrospect, the low priority I had assigned to the purchase of a modem was a combination of ignorance and foolishness. If only I had realized the exponential increase in computing power the acquisition of a modem would have afforded me, I would have made it my first peripheral addition.

WHAT IS A MODEM, ANYWAY?

The word "modem" is derived from a hybridization of the terms "MOdulator" and "DEModulator". From these words it is easy to see that a modem must do something and then un-do it. The something it does is convert (or modulate) the electrical data coming from your computer into an acoustic signal which can be transmitted over phone lines to another computer anywhere i the world. At the receiving end, another modem modulates the acoustic signal back into electrical form so the receiving computer can understand the data being transmitted to it. In essence, the modem is nothing more than an electronic translator.

This process of modulation/demodulation is necessary because the electrical ancestry of the now defunct Bell System is quite

different from that of a personal computer. The developmental history of the two systems succeeds in making them incompatible without the intervention of a modem to convert "computerese" to "phonese" and back again. The reason behind this incompatibility is nor particularly complex.

The telephone can be referred to as an analog device. This means its circuits are designed to respond to signals that smoothly and continuously vary with respect to time. Your voice is an analog signal. Since we humans are taught not to speak in a monotone, our voices' frequency patterns rise and fall constantly. Human voice is not simply "on" or "off". We alter the frequency of our voices over a range of approximately 15,000 Hertz or cycles per second. We also produce an analog pattern of changes in the intensity of our voice. When we speak into a telephone, the carbon granules in the mouthpiece receive the sonic vibrations transmitted through the air from our vibrating vocal cords. The phone, in turn, faithfully converts those acoustic vibrations into a constantly varying stream of electrical signals that precisely parallels the analog pattern of frequency and intensity of our voice. This stream of electrical data is then sent on its way through the phone lines to its destination. Amplifiers and filters along the way boost and clarify the signal to ensure the highest possible fidelity. When the signal arrives at the receiving end, the reverse process takes place. The electrical signals are converted back into sonic vibrations that are intelligible to the human ear.

In contrast, the computer is an entirely different beast, for it is referred to as a digital device. Its circuits are designed to recognize only two conditions, on and off. You might also think of a digital signal as high vs. low, yes vs. no, up vs. down, or for those mathematically inclined, the binary system's zero and one. A base two number system which only contains the digits 1 and 0, is ideally suited to expressing the electrical condition of a computer's circuits which at any given moment are simply on or off. There is no smooth and continuous analog change in the data moving through a computer's digital circuitry. There is no modulation of data, only abrupt, black and white switching from one state to another. When a user types his/her name into a computer, the system makes no attempt to create an electrical analog of the sound of that name. Instead, the computer's digital circuitry consults its ROM or "Read-Only-Memory" where its factory-installed, permanent knowledge of the ASCII code is stored. ASCII stands for the American Standard Code for Information Interchange. This widely used code is a system of assigning all of our letters, numbers, and symbols an arbitrarily agreed upon series of 1's and 0's called "bits" for "BInary "digiTS (Yuen, 1983). Generally, a group a eight bits defines a single alphanumeric character and is referred to as a "byte", the basic unit of a computer's memory. Thus, the letter "S" might be represented as 01010011 and an "C" as 01000001. While these strings of 1's and 0's may as well be Greek to the human eye, the computer can understand them perfectly, for it recognizes each letter, number, or symbol as a particular set of

circuits that are either on (1), or off (0). If you can imagine someone speaking to you one letter at a time, you have a pretty good understanding of a computer's digital nature and why it must communicate over the phone lines serially, one bit at a time. After all, to send eight bits of information simultaneously, in what is called "parallel" fashion, one would need eight separate wires, which is something that the phone company simply never built into the its system.

Now we can see the problem underlying computer communications over the phone lines is simply a clash between the analog and digital systems of data transfer. Attempting to hook your computer's digital output to an analog phone line is about as productive as inserting the phone's lead wire into your left ear. To further compound the problem, computers generate very rapid, weak electrical pulses, which would rapidly deteriorate after traveling any significant distance over a phone line. If two computers were sending data to each other simultaneously, the digital signals would severely interfere with each other preventing correct data reception at either end.

YOU TAKE THE HIGH BAND, AND I'LL TAKE THE LOW BAND...

This is where a modem rides to our electronic rescue. Much in the same way a telegraph operator listens to a series of digital dots and dashes and translates it into the spoken word, a modem takes the digital electrical signals from a computer and converts them into analog signals with which Ma Bell can cope. Digital "ons" or 1's become a pulse at a certain frequency, and

"offs" or 0's become pulses at a second, different frequency. To insure the bits of data being transmitted do not all flow together into a million letter "super-word", the modem automatically inserts "marker" pulses to indicate the beginning and ending of each character or byte. To get around the problem of simultaneous communication in two directions, the sending modem generates one particular pair of frequencies, while the responding modem transmits back a different pair. For example, a Bell 103-compatible modem (the commonest type of modem for personal computer owners) has two bands, a high and a low. When a computer is receiving a call, it responds on the high band, where a 0 is represented by 2025 Hertz and a 1 is assigned to 2225 Hertz. A modem that is originating a call employs the low band which sets a 0 at 1070 Hz and a 1 at 1270 Hz. This means a modem transmits and receives data on four distinct frequencies. When you decide to place a call to a computer, your computer, not noted for its clairvoyance, has no idea whether you have decided to converse with a machine or a human. Your trusty modem will take no chances. It will listen for the sound of another computer's carrier tone of 2,225 Hertz.

When you make your first call to a computer, gently pick up the phone and listen. You will hear an ear-splitting whine as the receiving computer verifies his mechanical nature beyond a shadow of a doubt. Your modem will gleefully generate the electronic equivalent of, "Oh wow, me too!!!", with an equally obnoxious 1,270 Hertz holler. Once the two machines have taken note of each other, a connection is considered established and

you get to talk. The reason your modem may hang up the phone if a human answers is quite simple. No one converses in a continuous 2,225 or 1,270 Hertz monotone. If you answer your phone and hear the carrier tone of a friend's modem trying to reach yours, try whistling a wide range of frequencies into it. If your're good, you just might fool his system into thinking you're a computer. Where you go from there, I really don't know. Anyway, make a mental note that the transmission frequencies just described are all less than 3,000 Hertz. This has great significance and we will deal with it in the next section. In summary, a modem carries on two tasks: converting digital signals to analog and back into digital again. Most of the phone lines we are familiar with are called "voice-grade" lines by the phone company. Obviously, Alexander Graham Bell originally designed these lines to transmit the sound of the human voice, not a computer's digital chatter. This sets the stage for a discussion of our next problem in computer telecommunications.

HOW FAST CAN I GO?

As stated earlier, the range of human hearing is generally between 20-20,000 Hertz. Unfortunately, voice-grade phone lines have a bandwidth of only about 2,300 Hertz. The highest pitched sounds go out at approximately 3,000 Hertz, while the lowest are transmitted around 700 Hertz. This narrowing of the total audible spectrum also acts to severely limit the speed at which a modem can transmit data using the four frequencies we have mentioned. There is a very stubborn law of electronics that essentially says the faster you send information, the more

"space" it takes up on the electromagnetic spectrum. Therefore the fastest one can reliably transmit data over voice-grade lines is 300 baud. That is assuming that both computers are talking to each other simultaneously.

What's baud? The term "baud" is derived from the name Baudot, an early French pioneer in telegraphic communications (Arrants, 1983). Technically, baud refers to the rate of digital signal changes on a communications line. Since computers transmit data over phone lines in serial fashion (one bit at a time), the common usage of baud has come to mean the number of bits (0's and 1's) transmitted per second. The most common type of modem, the Bell 103-compatible, transmits and receives at rates up to 300 baud. Due to error-checking procedures that will be described shortly, modems typically transmit ten bit characters, rather than the eight bits called for by the ASCII code system. Thus, you can roughly approximate the number of alphanumeric characters transmitted per second by dividing the baud rate by ten. In this case 300/10=30 characters per second. That may seem like Warp Factor 9 by human typing standards, but it's actually painfully slow, especially if you're in Kalamazoo and you want to send the complete manuscript of your latest novel over the phone lines to your publisher in Los Angeles. If your publisher doesn't accept collect phone calls, you're going to be in for a whopper of a phone bill. On the other hand, if you're making a local call just to electronically chat with one of your friends, the baud rate doesn't particularly matter.

AND YOU THOUGHT PEOPLE LIVED IN DUPLEXES

There are some options available to the user to help alleviate the problem of 300 baud transmission. A Bell 202A-compatible modem will transmit or receive at 1,200 baud (120 characters/second). That's about four times faster than the 300 baud modem just described but as usual, solving one problem usually produces another. The 202A modem can, in fact, zip along at 1,200 baud but it cannot transmit and receive simultaneously like its slower cousin. This condition is referred to as half-duplex transmission. Half-duplex communication is much like a one-way, rather than two-way conversation. It is not unlike a CB radio conversation in which only one person can talk at a time. The current speaker signals he/she is through sending by saying, "Over". When two modems are set for half-duplex transmission, they automatically handle the task of "turn-taking" by flashing, "Can I transmit?" and "Yes, you can.", back and forth to each other in tiny fractions of a second (The, 1983). The advantage of transmitting on half-duplex is that it uses the entire available telephone bandwidth for sending information (not receiving simultaneously) thus doubling the amount of information that can be sent per unit of time (Hosking, 1983). In addition, half-duplex transmission places less of a demand on the phone system which now only has to discriminate between two frequencies at a time instead of four. Half-duplex is also useful when you have a particularly poor connection because there is only half as much information being transmitted at any given time. One is well advised to purchase a quality modem that allows easy switching between duplex settings.

In comparison, The Bell 103-compatible modem can hold a two way conversation simultaneously and is referred to as a full-duplex modem. Normal human conversation is a full duplex situation because both individuals are capable of talking and listening at the same time. This could be compared to watching your TV, which would be "simplex" communication because it occurs in one direction only. A 1,200 baud 202A modem can't send and receive at the same time because its higher baud rate would take up more room than is available on a 2,300 Hertz bandwidth voice-grade phone line. Another drawback of the 202A modem is that it is incapable of operating at 300 baud (Archibald, 1983). The 202A modem is not a very wise choice of modem for it uses an uncommon set of transmission parameters (protocols) and may give you fits if your call to a distant computer happens to be routed through a satellite (Arrents, 1983). In contrast, there is a more standardized 1,200 baud modem capable of full-duplex communication. It is called a Bell 212A-compatible modem. This modem seems to have it all, 1,200 baud transmission rate, full-duplex, and the capacity to slow down to 300 baud on command. The "baud" news here is that it requires specially ordered, expensive lines called conditioned lines by the phone company. These conditioned lines are typically used by larger businesses whose volume of data transfer makes 1,200 baud transmission a necessity regardless of the cost. There is one fancy way of achieving 1,200 baud, full-duplex transmission over voice-grade lines. Hook the sending and receiving computers together using two

separate voice grade lines rather than one. Using very specialized equipment out of the economic reach of the average personal computer user, it is possible to attain baud rates of 4,800, 9,600, (note the multiples of 1,200) and even up to 60 megabits (60,000,000 bits/sec.). The latter rate of transmission is currently limited to very large businesses, and the government (Archibald, 1983). At the other end of the baud spectrum, one can find modems that operate at 110 baud for old fashioned teletypes, and even down to 45.5 baud for Telecommunications Devices for the Deaf, or TDD (Yuen, 1983).

At this time, many information services available for microcomputer access such as The Source or Compuserve impose a surcharge on 1,200 baud users. This premium is often twice as much as for a 300 baud user. While that may seem exhorbitantly expensive, recall that 1,200 baud transmission is roughly four times as fast as 300 baud. I say "roughly" because most microcomputers send their data <u>asynchronously</u>, meaning it is sent in a continuously variable stop/start manner. This relatively random flow of data means that whether you're in half- or full-duplex mode, data is never flowing all the time. Functionally, what this all means is that one should choose their modem based upon the type of use to which they expect to put it. If you simply want to dial up the local free computer bulletin board system (CBBS) or just chat on CompuServe's CB simulator, 1,200 baud may be of little utility to you and the increased cost may be a waste of money. After all, how fast can one type? Reading pages of data on a monitor takes the same length of time

regardless of whether it was delivered at 300 or 1,200 baud. In contrast, if you are a serious researcher, businessperson, writer, or stock market analyst who intends to upload and download large blocks of text on a regular basis, 1,200 baud is probably your best bet. Be aware however, that the higher the baud rate, the greater the chance of transmission errors occurring. Investigate the available 1,200 baud communications software packages carefully to see that they make adequate provisions for guarding the quality of your transmissions and receptions. This capability is called error-checking and is discussed in the next section. Despite their problems, 1,200 baud modems are rapidly becoming the standard of the industry, and many think that premium surcharges for their use will quickly be decreased or even eliminated. Until that point, the slower, but less expensive and highly utilitarian 300 baud modem will do just fine. Over the next ten to twenty years, computer telecommunications will be gradually weaned from the telephone lines and will be transmitted via "light pipes"; fiber optics and lasers which already have the capability of generating bandwidths that are hundreds of trillions of Hertz wide (McDermott, 1983)

SAY WHAT??!!

With all of this data zipping around the world to who knows where, its not just possible, but rather a virtual certainty that there are going to be occasional errors in transmission. The United States is blessed with the most sophisticated phone system in the world, yet it is chock full of little electronic gremlins that probably won't affect your annual call to Aunt Tillie on

Groundhog Day, but can surely can put the whammy on transmission of your latest manuscript. This is especially true at high baud rates over long distances. Modems and modem communication software can help check for these gremlins and can signal you if something has gone awry. One of the simplest forms of error-checking is afforded by full-duplex communication.

The first time I tried out my new modem, I called the local computer store, whose manager, by prior arrangement, had set up one of their micros to answer my call and establish a connection between our two computers. Once the computers were satisfied that they were, in fact, talking to a kindred spirit, the manager and I could "chat". This simply means that whatever I typed at my keyboard would appear almost instantly on his monitor and vice versa. I was all excited to try this out, but as I typed, "Hello David," I looked at the monitor and I saw " "! Nothing was appearing on my screen. Suddenly, my first telecommunicated message appeared on the screen, "Hello, Doug. How are you?". I responded with, "Fine, and you?", which again failed to appear on my monitor. Strangely, David answered back, "Couldn't be better!". Utterly mystified and glancing about the room for Rod Serling, I typed, "I can't see anything on my monitor!". The mystery unfolded as he replied, "You're set for half-duplex! Change to full". "Oh, okay", I typed, but then I realized I didn't know how. Quite embarrassed, I added, "????????" to my transmission. David patiently relied back, "Call me on voice phone, bye.....". A quick (normal) phone call later, I was informed that in half-duplex my message was

going only to him and not to my monitor. In switching to full-duplex, I established a true two-way link in which his system received my message and electronically "echoed" it back to me so I could see that what I was sending was really what he was receiving. By allowing the sender to get an instantaneous carbon-copy of his/her transmission from the receiving computer, echoing provides a significant degree of error-detection.

DUPLEX TRIVIA

Just as an interesting sidelight, there is one little anomaly that you will probably discover early in your telecomputing adventures. If you should happen to have your modem set to half-duplex and then establish a link with a system like The Source or CompuServe that is operating in full-duplex (and expecting the same from you), some very strange results will occur. Anything that you enter at the keyboard will appear doubled on your monitor. Your name will appear as, "NNAAMMEE". There's no need to call your optometrist, nor to worry you're damaging anything. Just reset your modem to full-duplex and life will become much less redundant.

Another interesting aspect of full vs. half-duplexing is that many information services such as the two just mentioned will help you keep your password safe from prying eyes by manipulating the duplex setting of your connection. For example, when you connect or "logon" to these systems, they will typically ask you for your ID number. That's no big deal, ID numbers are public information. In fact, other users will use your ID number

as your "address" for electronic mail. On the other hand, the second piece of information for which you will be prompted is your secret password. You most assuredly do not want anyone to know your password, for if someone did, he could logon to the system using your password and run up a huge bill against your credit card. Neither you nor the information service would ever know the difference. You don't even have to verbally tell someone your password, they could simply read it over your shoulder while you're logging onto the system. In order to help protect your account, both The Source and CompuServe momentarily switch to half-duplex when asking for your password. This neat little trick turns off the echoing effect so they will still receive your password, though you (and unwanted prying eyes) will see nothing on the monitor when typing it.

Another commonly employed method of error-checking is through the addition of a parity bit. If you will recall, the ASCII system assigns each alphanumeric character a unique number which is expressed as an eight bit series of base two 1's and 0's. In any given character there will always be at least a single "1", and probably more. By adding up the 1's we arrive at a total that is either even or odd. For example in the letter "S" (01010011) there are four 1's. Their sum is equal to four which is an even number. Inside of most computers is a UART (Universal Asynchronous Receiver / Transmitter). Its primary function is to convert the computer's habit of munching data in "parallel" fashion (eight bits at a time) to a "serial", or one bit at a time fashion for the benefit of the

phone company. More importantly for this discussion, UARTs can also can add a "parity bit" to the byte (Franzmeier, 1983). If the system is set to even parity, the UART adds a "0" if the sum of the byte is already an even number. If the sum of the byte is odd, a "1" is added to "force" an even total. The opposite is done if the system is set to odd parity. The UART adds a "1" if the byte sum is even, and a "0" if it is already an odd number. The point is, the parity bit should make the total of each byte either odd, or even, as the user requires to communicate with any given remote computer. As long as the receiving computer finds the sum of each byte in agreement with its parity bit setting, it is an indication that all is as it should be. However, if the sum of the byte is one, three, five or seven, and the parity bit setting is even, it is reasonable to assume there has been an error in transmission. The same is true if the sum is two, four, six, or eight and the parity bit setting is odd. While the parity bit doesn't guarantee correct transmission, it does help, especially in conjunction with the echoing effect of full-duplex transmission. However, both have drawbacks. Full-duplex transmission takes up twice the band-width of half-duplex and thus severely limits baud rate. Parity checking doesn't always work because if the system is set to even parity and <u>two</u> bits happen to be incorrectly transmitted, the system will still get an even number when is does a parity check on that byte. For example, if a particular byte contains four "1's", the parity bit will be a zero indicating the byte is even. Should two of the zero bits be misread as ones, the total of the byte will be six which is <u>still</u> an even number. Therefore, the system will

think nothing is wrong. Thus, parity checking will only work if there is an odd number of bit-errors. If there is an even number of bit-errors then the parity will stay the same. This gives the user only a 50/50 chance of error detection.

Some of the more sophisticated software packages perform an advanced form of error-checking known as cyclical-redundancy checks. In this method each character in a message is run through a special mathematical formula. The total result of those calculations is appended onto the end of the entire message, usually as two bytes called cyclical-redundancy characters (CRC's). The receiving computer runs the message through the same formula and compares its result with the CRC's sent to it. If the CRC's are identical, it is a virtual certainty that there were no transmission errors. CRC error-checking is a hands down winner over echoing and parity checking for it only adds two bytes onto the end of the whole message. Echoing requires doubling the amount of bytes transmitted, and parity checking adds an extra bit to each byte (Moss, 1983).

OKAY, SO I FOUND AN ERROR. WHAT DO I DO WITH IT??

What your system will do about transmission errors that it detects is largely a function of the type of telecommunications software that you're using and the particular protocol of the system with which you're communicating. Typically, error correction consists of re-transmitting the erroneous data until it is received correctly. Transmission protocols usually

determine how the receiving computer tells the sending computer an error has been detected and that it would appreciate having the message re-sent. The sending computer then attempts re-transmission a specified number of times and if the receiving computer still can't make heads or tails out of the message, the two simply decide to call it quits and the session is terminated (Moss, 1983).

YOU MIGHT AS WELL 'HANG IT UP'!

Unlike humans, computers need to know when they have been hung up on, either deliberately at the end of a session, or accidentally through a computer or telephone failure. Computers are incredibly stupid beasts and if you hang up on one, its feelings won't be hurt. In fact, if we didn't tell it to do otherwise, it would hang on the line forever, waiting for your electronic return. To prevent this pathetic situation, communication protocols allow for "time-outs". For example, when a computer transmits a message and requests a reply, it goes into a waiting state until it gets a response. If it doesn't get one within a specified period of time, usually somewhere around a minute, it again asks for a response. If it doesn't get a reply after a certain number of tries, the connection is automatically terminated. This feature is quite useful when you are logged onto one of the major information services like CompuServe which bills you for every single minute of connect time (the length of time that you are actually using their services). If you make no keyboard entry for several minutes or accidentally lose your phone connection, the system will soon detect your absence, will

automatically disconnect from the receiving end and will stop billing you for connect time. As an interesting but annoying sidelight, you should be aware that it is not a good idea to have a "call-waiting" feature installed on your phone system. If you are in the middle of a data transmission session, a call-waiting signal will almost certainly break your connection!

DO I HAVE TO DRAW YOU A PICTURE?

To graphically tie together some of the electronic concepts that have been discussed, examine Figure 1 (on page 27) which summarizes the major principles underlying serial, asynchronous data transmission. How the ASCII equivalent of the letter "S" (01010011) is converted from its digital, electrical signal to its corresponding analog sound frequencies, is illustrated. The following example assumes a common protocol: 300 baud, asynchronous transmission, seven bit characters, even parity, one start and one stop bit, and ASCII code. The passage of the letter is traced from the computer's memory to the UART, to the RS-232 Interface, to the modem, and finally to the phone line. In the process note the change from digital to analog data.

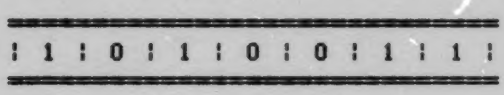
In step (1) we see a representation of the ASCII string of eight bits representing the letter "S" sitting at some location within the computer's memory. In step (2) the so-called "high-order bit" has been removed (the zero on the left). When using the ASCII system, only the seven remaining "low-order bits" are actually necessary for telecommunications. Stripping away the high-order bit leaves room for the UART to add a

parity-checking bit. In our example, the parity is even. The four ones total an even number, therefore the parity bit is a zero. It is tacked on where the high-order bit originally sat. In step (4) the UART adds a single start and stop bit to opposite ends of the "S", bracketing it and separating it from any other characters that may precede or follow it. The start bit is always a zero and is put on the leading edge of the character to be transmitted (in this case the right end). The stop bit, a one, is placed on the left side next to the parity bit. In actuality, the number of stop bits can vary depending upon the protocol used. The letter is now a train of ten bits (7 for the letter, 1 stop, 1 start, and 1 parity bit). In step (5) the message is sent to the "shift-register" area of the UART which sends out data at 300 bits per second. At this stage the data is said to be in transistor-transitor logic voltage levels (step 6). Zeroes are 0 to 0.6 volts, and ones are 2.4 to 5.0 volts. If no data is being sent, the line "idles" in the "one" condition (2.4-5.0 volts). Step (7) illustrates TTL data being sent to the RS-232 interface (an industry standard) where the message is changed to higher voltage levels suitable for passage to the modem. At this point a zero is represented by a range of +3 to +15 volts, and a one is signaled by -3 to -15 volts. Voltages between zero and three are undefined, and again the idle state (no data transmission) is the "1" state. Finally, in step (8) the data is sent from the RS-232 interface and alters it into the electical analog of sound by frequency-shift keying or FSK. At this point the zeroes and ones are distinguished by their frequency. To see how the receiving modem reverses the process,

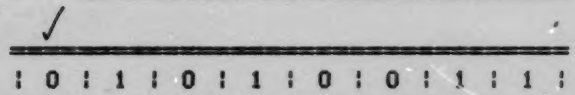
simply examine the chart in reverse. The modem picks up the electrical analog signals and converts them to RS-232 voltage levels and sends them to the RS-232 interface. The interface changes the signals to TTL voltage levels and sends them on to the UART. The UART takes 300 bit/sec. into its shift register. When all of the message unit has been assembled it is sent to the work register area of the UART. There, the UART pulls off the start and stop bits and checks for correct parity. If an error is detected the sending computer is notified to begin re-transmission. If the character passes inspection, it passes into the computer's memory and the whole process is repeated for the next incoming character (adapted from Link-Up magazine, Oct., 1983)

1) An ASCII "S"
(1 byte of 8 bits)

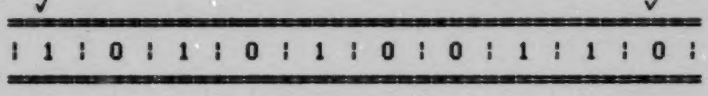
2) Only the 7 low-order bits are needed for phone communication



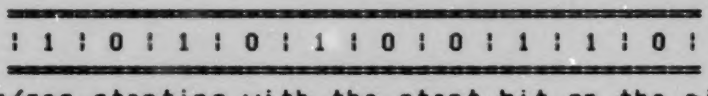
3) The UART can now add a parity bit for error checking (even here)



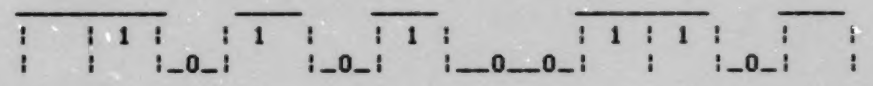
4) The UART adds a start and stop bit. A "0" start bit on right & a "1" stop bit on left



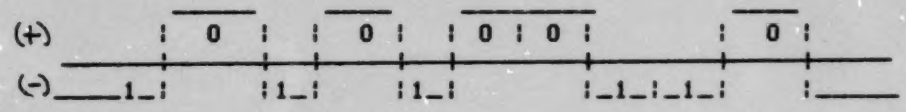
5) The 10-bit message is sent to the shift-register of the UART which ships out 300 bits/sec starting with the start bit on the right



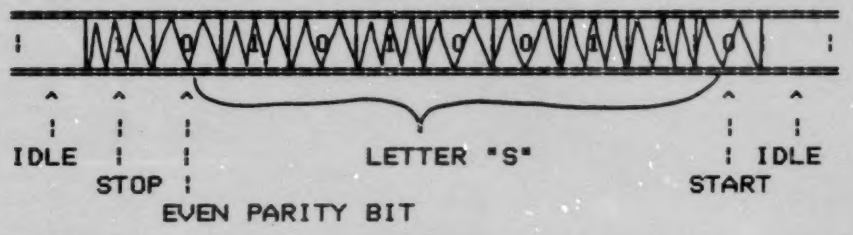
6) Transistor-transistor logic (TTL) data. Zeroes are 0-0.6 volts and ones are 2.5-5.0 volts. When the system is not transmitting, it idles in the "1" state.



7) The TTL data in the shift register goes to the RS-232 interface where it is changed to higher voltage levels prior to being sent to the modem. A "0" is represented by a range of +3 to +15 volts, while a "1" is a -3 to -15 volt charge. Zero to three volts is undefined and the idle state is still "1".



8) The modem is sent the the RS-232 level data and converts it into the electrical analog of sound by frequency-shift keying (FSK) in order to transmit the data over the phone lines. Note the higher frequency assigned to a "1" compared to that of a "0". The idle state is still a "1".



HOW DOES A MODEM CONNECT A COMPUTER TO THE PHONE LINES?

The manner in which a modem is connected to your system is dependent upon which of the two available types of modem you have selected. There are acoustic modems and there are direct-connect modems. Most of the early modems were of the inexpensive acoustic variety. They consist of a box with two rubber cups into which you insert the handset of a standard telephone. The rubber cups act as a seal to keep out extraneous noise that might cause an error in transmission or reception. The acoustic modem employs a microphone to pick up the signals coming up over the earpiece and a small speaker to send data out over the mouthpiece. Since the phone itself is an integral part of the system, you must manually dial the number yourself and, when you hear a carrier tone, place the receiver into the modem's rubber cups. This can be an annoying process if the line is often busy and you must repeatedly redial. Connecting through some of the new long-distance carriers such as MCI or Sprint can also be bothersome because of the long series of numbers that one must dial. Furthermore, acoustic modems generally lack the capability of unattended operation and don't make good acoustic seals with receiver shapes other than for your basic, boring, black desk phone. Still available, these modems are comparatively inexpensive because they don't directly connect you to the phone line any more than you could be considered directly connected (electronically) to the phone lines when you make an ordinary call. They lack much of the circuitry found in direct-connect modems and are therefore usually cheaper. They are also very simple to use and are particularly utilitarian if

you are a frequent traveler with your portable system and wish to connect to your favorite service in a hotel room or even a phone booth that doesn't provide you with a modular telephone jack.

The biggest disadvantage to acoustic modems is that the use of microphones and speakers increases the chance for transmission errors. The ordinary telephone was never designed for high speed data transmission. The mouthpiece is filled with carbon granules that vibrate in response to your voice. Unfortunately, these granules begin to settle and pack together like a box of corn flakes after a period of time. This invariably decreases the quality of the signal. The high frequency whines generated by a modem can significantly accelerate this process and result in garbled transmission. If you are a regular user of an acoustic modem it is a good idea to periodically rap the mouthpiece against a hard surface to unpack the carbon. A better idea is to replace the element in the handset with a special microphone designed to accommodate high speed data transmission.

Direct-connect modems are much more popular and are quickly becoming the industry standard. Instead of sticking the handset into a pair of rubber earmuffs, the direct-connect modem does just what its name implies, it connects directly (electronically) to the phone lines. With many DC modems the telephone handset doesn't even have to be off its hook. While many DC modems have an external circuitry box, my modem, the Hayes Micromodem IIe, has been reduced to the form of a single, internal card or board which plugs into one of my Apple IIe's expansion slots. All I

have to do is run a standard phone cord from the card to a "Y" modular phone jack on the wall (the modem and phone can share the same jack). The system completely bypasses the microphone and speaker in my phone. It is a never ending source of amazement to my non-computing friends that I can dial the phone from my Apple's keyboard without even taking the handset off its hook. The Micromodem IIe is even equipped with a small speaker so I can listen for a dial tone, hear the pulse or tone dialing, and hear the results of my call which may be anything from a busy signal, a human voice answering, silence because of no answer at all, or the carrier tone of an answering computer. Just around the corner are single chip modems built right into your computer.

Because the DC modem ties in directly to the phone lines, there is less chance of transmission errors occuring. The price of a DC modem is often substantially higher than acoustic modems because of the additional circuitry needed for its operation. The cost is also influenced by the fact that Ma Bell is understandably very particular about what you hook into her system. A DC modem must be certified to meet certain electronic standards by the Federal Communications Commission (FCC). Meeting these standards takes time, money, and the design of special circuitry. As with most governmentally entangled research and development, the lion's share of the cost involved is passed on to you in the product's purchase price. (Miastkowski, 1982).

THE HARVARD SCHOOL OF HIGHER MODEMRY

When you purchase your modem there are a number of features that you should ask yourself if you need or want. Many of the newer modems are so called "intelligent" or "smart" modems. They possess a degree of smarts that can greatly facilitate your telecomputing. For example, in the olden days modems were either "answer-only" or "originate-only". Depending upon your needs you either bought a modem that could place a call, or could receive one. Now most modems have both capabilities and all you have to do is throw a switch or press a key to tell the modem which mode you are interested in.

Another convenient feature is "auto-answer" mode. This is very nice if one of your buddies wants to send you a copy of his latest programming effort tonight but unfortunately, you have tickets for the opera. No problem, just set the modem for auto-answer and it will patiently sit by the phone all evening waiting for it to ring. If a call comes in the modem will answer and listen for a carrier tone. If it hears one, a connection will be established and your trusty modem will begin receiving the program and sending it on to your computer where it will be automatically recorded to disk to await your return. Should Ernie the butcher call about those dog bones you wanted, the chances are slim that he will ask to speak with you at 2,225 Hertz (an originating call's carrier tone), thus your modem will be quite perplexed at Ernie's sonic babble and will promptly hang up on him. This feature is invaluable to the businessman who may wish to receive or transmit electronic mail across several time

zones. Irving, in Baltimore may be home for the evening when Marsha at the home office decides to transmit some sales figures from Seattle at 4:30 p.m. pacific time. Again, we have no problem here. Irving simply sets his office computer to auto-answer mode and goes home, confident that the data will be waiting on his diskette in the morning when he returns to work.

In conjunction with the proper telecommunications software, modems can become incredibly versatile. Some other features that you might look for include the ability to auto-redial (without you doing anything at all). This is very useful if the number you're calling is often busy. A system so equipped will place a call, wait thirty seconds or so for a carrier and then hang up and try again repeatedly until it gets through. Another useful feature is the ability to upload and download files with sophisticated error-checking. There are literally thousands of free, public domain programs available to users from the major information services, as well as the hundreds of privately run computerized bulletin board systems (CBBS's) across the country. Your system should have the capability of sending (uploading) both text and programs to another computer as well as receiving (downloading) the same. It makes much more sense to be able to recall a letter from diskette and upload it at 300 baud, than to compose the letter from scratch while online. Writing even a short letter online could be an expensive proposition. By adding a clock to your system, you can go to bed early and have your system automatically transmit your files at say, midnight when the phone rates are down.

One final feature, which frequent information service users find convenient, is "auto-logon". As mentioned earlier, there are a number of steps involved in logging on to most major information services and data bases. Typically you are asked for ID numbers, passwords, account numbers, terminal type, and so on. Many quality software packages allow you to store the database's phone number and all necessary logon information right on your disk as a text file. With just a few keystrokes, your system will automatically transmit all of this information to the host computer and you will be quickly and efficiently logged on. This list of features is by no means complete. It is only intended to give the new user an idea of what sorts of features to look for.

OKAY, I WANT TO GO ONLINE: WHO'S OUT THERE?

In the next few chapters we'll be taking an in-depth look at a number of the easily accessible national information services. You will be given phone numbers, rate structures, and even information on how to obtain free demos of The Source and CompuServe. In addition to learning the nuts and bolts of how to logon to these various and sundry services, you will also get a chance to view "screen dumps", actual transcriptions of what you would see on your monitor if you were actually doing this yourself.

This tutorial is aimed at demonstrating the educational value of computer telecommunications. Therefore, the presentation of each service will specifically discuss only those

aspects this author feels might be useful to teachers or students. Major online information sources such as the two just mentioned above offer literally thousands of activities to the personal computer user. I will limit myself to describing those that have broad educational impact, at the risk of ignoring some that certain teachers might find specifically useful for their class. Put differently, CB teleconferencing on CompuServe has wide-ranging educational impact, whereas its database of food recipes, business reports, or games might have educational appeal to only a few select educators for highly class-specific uses. Professionally , it is this author's opinion that any sort of online experience is viable in the overall educational sense. I believe that a teacher would be unfair to place strict limits on the data that a student could access.

Before we begin our information service tour, it is necessary to give a brief overview of the various genera of services available while defining the differences between them.

As you electronically explore the online services available you will be quite surprised at the incredible array of services available. Take care to note, though, the costs involved and the degree of redundancy among the services. Most of the available services are truly outstanding, but you're bound to come across a few that are worthless for your purposes. In such a rapidly growing market, the byword is definitely "caveat emptor."

The next time you visit the reference section of decent public library, ask the librarian to see Gale's Encyclopedia of Information Systems and Services." In its 1983 incarnation, this massive work was 1,242 pages long, and revealed information on well over 2,500 online databases or information services! There is a lot out there. If you take your time, and ask a lot of questions, you will succeed in gaining access to the information you want, at a price you can afford to pay.

There are basically three different classes of databases, plus some hybrids available online, that differ from each other in some fundamental ways. According to Roberts (1984) there are: full-text, bibliographic, and "justs the facts" types of individual databases.

Highly useful, but fairly uncommon, are full-text databases. These collections are typically organized by a common theme or subject area. The advantage of such services are that one gets the actual information, in its entirety, rather than just bibliographic references to it. Full-text bases are uncommon for a number of reasons, one of which is purely financial, for both the vendor and the end user. Keeping a massive full-text database online requires many megabytes of expensive memory storage. Secondly, one would probably not find it economically feasible to logon to a full-text database that might easily charge over one hundred dollars per connect hour, and then proceed to download a ten-page article at three hundred baud. Consider, for example, that you wanted to download a single 4,000

word magazine article from a full-text base that charges a hundred dollars per connect hour. At 300 baud, your article would be transmitted in roughly 13.3 minutes. This works out to .22 hours times $100.00 per hour, or $22.00 for a short article. Unless you can't get the article any other way, this is obviously not the way to go. Lastly, consider the fact that the article you just downloaded will have some features the original printed article did not have. It will come to you with a number of descriptors, terms that were used in its classification, that may be of great value to you in cross referencing to other useful sources. These descriptors were added by the person that originally abstracted the article for the database, and of course, they were probably paid for their work. For the serious researcher, full-text databases are a dream come true. Just realize that for the casual user, the cost may be prohibitive. Examples of full-text bases would include the massive DIALOG (whose little brother Knowledge Index is reviewed later), BRS, ORBIT, Online Chronicle, the Harvard Business Review, and NEXIS / LEXIS. The latter two are both provided by Dayton, Ohio-based Data Central. LEXIS is a legal and accounting base that has been available since 1973. NEXIS is a full text news service, consisting of all articles appearing in UPI, AP, Reuters, PR Newswire, Kyodo, and Jiji, as well as several major newspapers, newsletters, and magazines.

In contrast, bibliographic databases are much more common. As their name implies, they don't give you access to the full-text of the article, but they will give you bibliographic

information that you may then take to the local library to find the material you require. Often these bases will offer you abstracts in addition to simple bibliographic citation. Thus, searching out information through bibliographically oriented database would be a two-step procedure. First, one would download the citations they feel are good "hits" or sources of information. Secondly, one would physically track down the original sources in the library. Bibliographic bases provide an economical first step in researching a given topic. If you live near a major public or university library, this may be the route to go. If you find the library doesn't have some important sources to which the bibliographic database steered you, then you can consider logging onto a full-text database to retrieve them if they were critical to your work and thus worth the cost. It should be pointed out that some services, such as Knowledge Index, allow you to search and download simple author/title citations, full bibliographic citations, and full citations plus abstract and descriptors. This is capped off with the option of ordering the full text of the original source while online to be delivered to you (for a charge) through the mail. Knowledge Index is particularly attractive to educators and students because it doesn't individually price the connect time of its databases. Instead, it offers an excellent subset (ERIC, Biosis Previews, Magazine Index, Books in Print, Psych Abstracts, etc.) of the bases offered by its parent firm DIALOG, at a flat rate of $24.00 per hour. Bibliographic citation bases will be with us for a long time to come because of their flexibility and cost. In addition, they are about the only way one can even hope to

keep pace with the amount of new text written every day, which some experts place as high as 200,000,000 words per hour (Roberts, 1984).

The third major group of online databases have been called "just the facts" bases, or non-bibliographic. They don't provide you with citations of information sources, rather they just answer your question about the subject matter at hand. They typically store information that you generally don't find in books, articles, or newsletters. For example, suppose you wish to know how many tons of sugar have been exported from the U.S over the past five years. Logging onto the U.S. Exports Database will supply the time-series answer, often in graph or table format. Thus, what you get is not an abstract of an article, or the article itself. It just, as we've said, gives you the facts. One of the largest such services is Data Resources Inc., whose collection of ten million time-series studies goes back as far as 1929. Their bases cover such topics as employment, energy, interest rates, productivity, and demographics (Roberts, 1984).

The preceding has dealt with specific databases or collections thereof. One should be aware that there are many online services that are not databases per se. For example, there are services concerned with electronic shopping, banking, and barter. Comp-U-Card of America Inc. is a computerized buying service. After paying a very nominal membership fee (around $25.00/year), you can browse through the descriptions and prices of well over 55,000 items, ranging from kitchen ranges and

stereos to clothing and signed, original art prints. Typically, the items are for sale at 10 to 40+ percent discounts from their manufacturers suggested retail prices. You can join Comp-U-Store directly or access it thru CompuServe, The Source, Dow Jones News/Retrieval Service, or Delphi.

An interesting service prepared by Market Data Retrieval, Inc. of Westport, Connecticut (and available through DIALOG) is the national Electronic Yellow Pages which can be of invaluable use to businessmen, advertisers, and market analysts. It essentially acts to compile all of the country's Yellow Pages into one massive electronic database so that a user in Flint, Michigan can inquire, "How many hardware stores are there in Charlotte, North Carolina, and what are their names and phone numbers?"

Other services too numerous to mention, are dedicated to bulletin board systems where one can buy, sell, or trade articles of value. The information utilities previously mentioned have national bulletin boards of their own. In addition, one can find their local, free equivalents through the thousands of privately-run computerized bulletin board systems (CBBS's) that will be discussed in a later chapter.

Electronic banking is just coming into its own. Residents of several cities, such as Columbus, Ohio, the home of CompuServe Information Service, can access and manipulate their accounts with The Huntington National Bank, based in Columbus. Through

this service, called Huntington BankShare, Columbus residents can inspect their accounts, pay bills, examine their mortgage, and perform most ordinary banking with the exception of actually depositing funds. Other information utilities are also experimenting with the concept of electronic cash transfer and account inspection.

Much more than just individual databases and hybridizing many of the services just described are the highly eclectic "information services or utilities." These services are the most commonly accessed by personal computer users for a variety of purposes. The Source, CompuServe, Dow Jones News/Retrieval Service, and Delphi are amazing, sprawling collages of factual databases, special interest teleconferencing groups, games, reviews, advice columns, online retail stores, and electronic mail capability, to name only a very few of their features. Extremely inexpensive by comparison to full-text databases (only $5-10.00/hour during the evening) the information utilities are aimed at satisfying the telecomputing needs of the general computing public. In some respects they can be very competitive with the encylclopedic databases. Some, like Delphi, are capable of acting as "gateways"- electronic portals through which one can connect from one service to another. Delphi, a fledgling and very promising new information utility, is allowing its users (for an additional fee) to logon to the basic Delphi system and then, with a few keystrokes, connect directly to DIALOG and other major purveyors of detailed bibliographic information. By virtue of their extremely eclectic nature, the big four information

utilities vitually guarantee their survival in the marketplace.

Most of the information utilities are available during business hours, but they also allow access by evening and very early morning users. Their computers are heavily accessed during the day by commercial customers. Since computers are not the sort of device that one flicks on and off at 5:00 p.m. like a common light bulb, more than one company has found that a nocturnal use for their already up-and-running machines would be mutually beneficial to both the company and the personal computer user. While prime time (business hour) users often pay over twenty dollars an hour in connect time, evening users only pay from $5.00 to $10.00 per connect hour for the same service.

While each of the following chapters will deal with one of the major information utilities, the next chapter concerning CompuServe will be the most in-depth. This should not be interpreted as an endorsement of CompuServe over The Source, or Delphi. Rather, CompuServe will simply serve as a model for deeper illustration than the others. There is a high degree of redundancy among the information utilities. For example, most offer electronic mail, online reviews, buying services, games, and teleconferencing of one sort or another. In some instances, the services just mentioned are virtually indistinguishable. While others are not identical, they are so similar that there is no significant purpose in discussing them at length. It is my opinion that using one utility as a model for instruction, will facilitate the reader's easy adaptation to similar services.

COMPUSERVE INFORMATION SERVICE: WHO, WHAT, WHERE, AND HOW

One of the best known of the information utilities, CompuServe Information Service (CIS) is a product of CompuServe, Inc., a Columbus, Ohio time-sharing company that began local operation in 1968. In September of 1979, CompuServe offered the computing power of its mainframes to private individuals. Its growth rate since then has been nothing short of phenomenal. In 1980, CompuServe was purchased by H & R Block, Inc., (of income tax fame) and remains a wholly owned subsidiary of that company. Today CompuServe employs over 560 employees nationwide and has in excess of 110,000 subscribers, growing by over a thousand new subscribers each month (Columbus Dispatch, March, 18, 1984 pg. D1). An amazing success story, CompuServe's now has 32 mainframe computers which private individual can log onto via a local call in nearly 500 U.S. cities throughout the United States.

CompuServe, like many other online services, can be reached from very distant locations without incurring huge long-distance connect charges in addition to the connect-time fee charged by the utility itself. Distant users can logon to CompuServe and other online services through several special phone networks that are dedicated to computer telecommunication only. Bearing in mind that CompuServe is in Ohio, The Source is in Virginia, and DIALOG is in California, it is easy to see that online services would quickly lose their appeal if one had to pay regular long-distance telephone charges. To get around this problem we have employed a new technology called "packet-switching."

The three major packet-switched networks that you will quickly become familiar with are GTE's Telenet, Tymshare's Tymnet and DataPac (for Canadian users). A relative newcomer is Uninet, a service provided by Uninet, Inc., of Roseland, New Jersey. Still other information utilities are experimenting with their own networks. The Source has recently dropped Tymnet and is encouraging users to logon using "Sourcenet", its own private network. CompuServe is beginning to employ its own version called CompuServe Network Services (CNS), available at no additional charge. While the packet-switched networks may appear quite transparent to the user, they are not actually free. Typically, they <u>seem</u> free because their cost is usually figured into the particular utility's basic connect-hour charge. Therefore, you will never see anything appear on your regular monthly telephone bill. In other cases, you may incur a supplementary charge of a few dollars an hour in addition to the fees imposed by the service you are logging onto. Of course, if you live close to the particular service, you call them direct and incur no extra charges at all.

Finding the telephone number of the nearest Tymnet, or Telenet connection is as easy as making a toll-free "800" call. To get the Tymnet number for your area, simply call;

<u>Tymnet</u>

1-(800) 336-0149 (Eastern United States)

1-(800) 323-7389 (Western United States)

If you're in the midwest and not sure which number to call, it doesn't matter. Either number will actually work regardless of your location. Two numbers is just Tymnet's way of dividing up its telephone load.

To reach the number of the nearest Telenet port call;

Telenet

1-(800) 336-0437 (Continental United States)

1-(800) 572-0408 (in Virginia)

A complete listing of Telenet, Tymnet, DataPac, and CompuServe Network access numbers are listed alphabetically by state in the appendix.

COMMUNICATIONS SURCHARGES

Communication surcharges apply only when a supplemental communications telephone line is used for connection. Each location has the option of dialing through a CompuServe network access phone number with no associated surcharges, or through a TYMNET, DataPac or Telenet number with surcharges as follows:

Service	Standard	Prime (per hour)
Telenet-from:		
contiguous U.S.	$ 2.00	$10.00
TYMNET-from:		
contiguous U.S.	$ 2.00	$10.00
Alaska	20.00	20.00
Hawaii	10.00	10.00
Puerto Rico	15.00	15.00
DATAPAC-from:		
Canada	$ 8/hr	$ 8/hr
Canada (TYMNET and Telenet)	$ 8/hr	$ 8/hr
*Canada CIS Gate	$ 1/hr	$ 1/hr

In addition to the CompuServe surcharge, you will be billed directly by DataPac for access through the DataPac gateway (contact Bell of Canada for rates).

Depending upon the type of equipment you are operating, connect your system to a modem or acoustic coupler (Bell 103, 113 or 212A type). If you are using a microcomputer, connect the telephone with your communications equipment and boot (run) your communications software. Select the network access number that services your area.

Using the CompuServe Network will NOT incur a communications surcharge while use of the TYMNET, TELENET or DataPac network will generate a communications surcharge. Check with the owner's manual of your modem and communications software to set the following communications protocol:

300 baud or 1200 baud
7 bit ASCII even parity OR
8 bit ASCII no parity
1 stop bit
Full duplex

The following procedure is a modification of an actual download from CompuServe concerning how to logon via Tymnet, Telenet, or the CompuServe Network. The procedure for using Tymnet or Telenet to reach other online services is almost identical with the obvious exception of specific host or user names. For example, when logging on to CompuServe through Tymnet, it is necessary to respond, "CIS02" to the prompt,

"PLEASE LOG IN." If you wished to reach Knowledge Index, you would not respond with "CIS02", but rather, "KI". Everything else would be the same. Realize of course that your ID Number (or account number) and password are unique to each service. Your identification for The Source would be quite different from the one you use for CompuServe, Delphi, or DIALOG.

Logging on Through the Compuserve Network

Access made directly into the CompuServe Network is available to all subscribers at no additional communications surcharge. The CompuServe Network can be reached by a local phone call from most metropolitan areas of the contiguous United States.

1. DIAL THE COMPUSERVE NETWORK PHONE NUMBER.
(No surcharges apply.) Listen for the continuous, high-pitched carrier tone. Hang up and redial if you do not hear this tone.

2. CONNECT COMMUNICATIONS EQUIPMENT WITH TELEPHONE AND TERMINAL/MICROCOMPUTER.

3. ENTER ^C (Control-C)
While holding down the CONTROL key, press the C key simultaneously. (You can press the CONTROL key before and after pressing the C key without any problems.) Note: Pressing CTRL-C is unique to signing on to CompuServe and is not used by other services.

4. RESPOND TO NEXT PROMPT
If you receive a HOST NAME prompt, respond by typing in CIS and press the <ENTER> key. If you do not receive this prompt, you will get the USER ID prompt as follows. When you receive the USER ID prompt, respond by typing in your User ID number and press the <ENTER> (or <RETURN>) key. For example:

User ID: 76003,534 <ENTER>

5. ENTER YOUR PASSWORD
You will be prompted for your password. Type it exactly, or you will receive an error message and be asked to reenter. Press the <ENTER> key after typing in your password. For example:

Password: LION*PEACH <ENTER>

Notice as you type in your password that it will not print out on your screen. This is a security feature for your protection. Remember when we talked about half-duplexing and no "echo"?

6. If your ID and password are correct you will be admitted to the system.

Logging on Through the TYMNET Network

Access made through the TYMNET network into the CompuServe Service incurs a communications surcharge.

1. DIAL THE TYMNET NETWORK PHONE NUMBER (As described above)

2. CONNECT COMMUNICATIONS EQUIPMENT WITH TELEPHONE AND TERMINAL/ MICROCOMPUTER

3. ENTER TERMINAL IDENTIFIER
TYMNET will cause the prompt "PLEASE TYPE YOUR TERMINAL IDENTIFIER" to display on your screen. If you are logging on at any other speed than 300 baud, this message will be garbled. Type in the letter A. DO NOT follow your entry by pressing the <ENTER> key. For example: PLEASE TYPE YOUR TERMINAL ID: A

4. ENTER USER NAME
TYMNET will next prompt you with "PLEASE LOG IN". Enter one of the following user names:

CIS02,CIS03,CIS04,CPS01

and follow by pressing the <ENTER> key. If you make a mistake entering the user name, press the ESCAPE key and reenter the user name. An example of typing in the daytime host name is as follows:

PLEASE LOG IN: CPS01 <ENTER>

Note: If you must use a half duplex terminal, enter a ^H (by pressing down and holding the CONTROL key while simultaneously pressing the H key), and then type in the user name.

5. ENTER USER ID NUMBER (As per above)

6. ENTER YOUR PASSWORD (As per above)

Logging on Through the Telenet Network

When Telenet is used to access the CompuServe Service, an additional communications surcharge is incurred.

1. DIAL THE TELENET NETWORK PHONE NUMBER

2. CONNECT COMMUNICATIONS EQUIPMENT WITH TELEPHONE AND TERMINAL/MICROCOMPUTER

3. PRESS THE <ENTER> KEY TWICE
Telenet will announce its presence and will display the terminal port address. Note: In the unlikely event that you are logging on at half duplex, press the <ENTER> key, then the semicolon key (;) and then the <ENTER> key again.

4. ENTER TERMINAL MODEL
Telenet will display the prompt "TERMINAL =" on your terminal. Type in the response D1 (indicating that you are using a microcomputer) followed by pressing the <ENTER> key. For example:

TERMINAL = D1 <ENTER>

5. ENTER NETWORK ADDRESS
Telenet will next prompt you with the "@" symbol. Type in either one of the following codes and press the <ENTER> key.

C 202202 <ENTER>
C 614227 <ENTER>

For example:
@C 202202 <ENTER>

6. ENTER USER ID NUMBER (As per above)

7. ENTER USER PASSWORD (As per above)

IMPORTANT!

When you are ready to log off the CompuServe Service, enter the word BYE or OFF at any prompt and THEN disconnect/hang up the telephone from your communications equipment. Failure to enter BYE or OFF may result in your connection with the service being maintained (and billed to you) for a period of time, normally no longer than 20 minutes, until the service notices that you have disconnected and drops you from the service.

STANDARD CONNECT CHARGES

CompuServe's standard rate is available 6 p.m. to 5 a.m., weekdays all day Saturday, Sunday and announced CompuServe holidays. (Time is determined by local time at location of network connection.) Rates are $6.00/connect hour (300 baud) and 12.50/connect hour (1200 baud). Connect time is billed in one minute increments, with a minimum of one minute per session. All rates exclude local telephone charges.

PRIME CONNECT CHARGES

CompuServe is available at premium rates 8 a.m.- 6 p.m., weekdays. (Time is determined by local time at location of network connection.) The Programming Area is not available during Prime Service hours. Rates are $12.50/connect hour (300 baud) and 15.00/connect hour (1200 baud). Connect time is billed in one minute increments, with a minimum of one minute per session. All rates exclude local telephone charges.

HOURS OF OPERATION

STANDARD SERVICE - 6 p.m. to 5 a.m. weekdays, all day Saturdays,
Sundays and announced CompuServe holidays.
PRIME SERVICE - 8 a.m. to 6 p.m. weekdays.
OTHER - Service between 5 a.m. and 8 a.m. Eastern time weekdays is on an as-available basis.

If you would like to try out the three ways of logging onto CompuServe, or most any other service, you need not actually be a subscriber. You may go online and execute all of the steps detailed above for the Tymnet, Telenet, or CompuServe networks. In each case, you should be able to get down to the prompt for, "User ID:". At this point you may enter any random ID number that happens to occur to you, (to see the error message generated) or simply disconnect from the network.

Going one step further, it is possible to get a free demonstration of CompuServe by using the following ID number and password:

ID Number = 77770,101

Password = FREE-DEMO (You must type in the "-")

This will get you into a demonstration area of CompuServe where you may experience the feel of an information utility and begin to feel comfortable with it. Bear in mind that you are restricted to seeing only a tiny fraction of CompuServe's online offerings, but it will still give you an excellent idea of how the service operates. Should you find yourself sufficiently enthused by CompuServe, you may purchase a "starter kit" at most computer stores or through CompuServe itself. The cost is approximately $40.00 and includes your temporary ID number, password, purchase contract, and the opportunity of getting five free hours on the system. The cost of joining the various online services should be taken with a grain of salt, as regular

advertising promotions either reduce or eliminate the initial sign-up costs. Watch for certain modem and telecommunication software manufacturers to regularly offer free or reduced subscriptions to various services when you purchase their products. If you have questions about the starter kit or where you can obtain it, call CompuServe's toll-free customer service office at 1-(800) 848-8990 or (614) 457-8650 in Ohio.

CompuServe is a menu-driven utility. This means that you will always be presented with a list of numbered options from which you can choose. It is not unlike a restaurant menu in which there are many foods (services) to pick from. You might even have seen some fast-food establishments or inexpensive steak houses where you pick your entree by number.

Having selected the option you wish, CompuServe will deliver you to another menu more specifically associated with the topic you are pursuing. This process is repeated until you arrive at your "destination". Below is an actual download of a session with CompuServe in which the destination or objective was to get an explanation of how to maneuver through the system. Follow the example carefully, and note how the menus link to each other with an increasing degree of specificity as you move "down" into the system. Technically, this type of structure is referred to as an inverted tree.

Assuming that contact has been established with CompuServe via Tymnet, Telenet, CompuServe Network, or a direct call you will see...

```
User ID: 72366,444      (MY OWN CIS ID NUMBER; YOURS WILL
                         BE SIMILAR)
Password:               (NOTHING SHOWS BECAUSE ECHO IS TURNED OFF)


CompuServe Information Service
 0:38 EST  Saturday  28-Apr-84  (TIME/DATE ADMITTED TO SYSTEM)

CompuServe              Page CIS-1  (COMPUSERVE MAIN MENU)

CompuServe Information Service

1 Home Services              (THESE ARE YOUR INITIAL OPTIONS.)
2 Business & Financial
3 Personal Computing
4 Services for Professionals
5 The Electronic Mall (tm)

6 User Information
7 Index

Enter your selection number,
or H for more information.  ("H" STANDS FOR "HELP")
!6                  <-------(WE'VE CHOSEN #6: USER INFORMATION)

(WHICH TAKES US TO ANOTHER MENU)

CompuServe              Page CIS-4  (USER INFORMATION MENU)

USER INFORMATION
 1 What's New
 2 Command Summary & Usage Tips
 3 Feedback to CompuServe
 4 Order Products, Guides, etc.
 5 Change Terminal Settings
 6 Change Your Password
 7 Billing: Your Charges, Rates
       Options, Making Changes
 8 Logon Instructions & Numbers
 9 Electronic Bounce Back

Last menu page. Key digit
or M for previous menu.
!2           <------ (WE'VE CHOSEN #2: BASIC SUMMARY AND USAGE
TIPS)

(WHICH DELIVERS US TO STILL ANOTHER MENU.)
```

COMMAND SUMMARY AND USAGE TIPS

1 Explanation of Menus and "GO"
2 Navigational Menu Commands
3 Control Characters
4 Communication Standards

Last menu page. Key digit
or M for previous menu.
!1 <----- (WE'VE CHOSEN OPTION #1 FROM THE MENU ABOVE)

(COMPUSERVE THEN RESPONDS WITH INFORMATION ALMOST AS YOU SEE IT BELOW. THE TEXT HAS BEEN EDITED ONLY TO THE EXTENT THAT DISRUPTIVE PROMPTS, MENUS, AND PAGE BREAKS HAVE BEEN REMOVED.

WHAT IS A MENU?

The menu approach to information selection and display is quite simple. Most features of this service are available through page-numbered menus. You will notice that an exclamation point (!) is displayed prior to the user entry. The exclamation point (!) is the symbol used within the menus to prompt you for input. When you see an ! and the cursor stops, you are expected to type in a selection or a command followed by <ENTER>. You can also just press the <ENTER> at some prompts. Please read the prompt before responding. As you become familiar with using the Compuserve menus, you may want to use a shortcut to the specific services you desire. The "GO" command makes service access more direct. To execute the GO command, you must understand the page numbers. Most screens of display have a page number in the upper right hand corner that consists of three alphabetic characters and a dash followed by a number. For example, the main menu's page number is CIS-1. The GO command allows you to type in GO, a space and then the page number of the service you want to use.

For example, if you want to go directly to the index, you may enter the GO command followed by the page number IND-1 at any ! prompt. You may abbreviate the page number by eliminating the dash and the number after the initial three characters of the page number. This will take you to the selected service's first page. For example, to go to the first page of the index, you could enter the following command, GO IND.

BRIEF COMMAND SUMMARY

T - TOP menu page
M - previous MENU
F - FORWARD a page
B - BACK a page
H - HELP
R - RESEND a page
S n - SCROLL from item "n"
G n - GO directly to page "n"
N - display NEXT menu item
P - display PREVIOUS menu item
OFF or BYE - logs you off

CompuServe Page CIS-1

CompuServe Information Service

1 Home Services
2 Business & Financial
3 Personal Computing
4 Services for Professionals
5 The Electronic Mall (tm)

6 User Information
7 Index

CompuServe Page HOM-1

HOME SERVICES

1 News/Weather/Sports
2 Reference Library
3 Communications
4 Home Shopping/Banking
5 Discussion Forums
6 Games
7 Education
8 Home Management
9 Travel
10 Entertainment

CompuServe Page FIN-1

BUSINESS AND FINANCIAL SERVICES

1 News & Financial Analysis
2 Investments & Quotations
3 Communications
4 Brokerage & Banking
5 Reference Library
6 Discussion Forums
7 Travel Services

8 Personal Finance

CompuServe Page PCS-1

PERSONAL COMPUTING SERVICES
1 News
2 Reference
3 Communications
4 Shop at Home
5 Groups and Clubs
6 Personal File Area

CompuServe Page SFP-1

Services for Professionals
1 Aviation
2 Communications/
Data Processing
3 Engineering/Technical
4 Legal 5 Medical
6 Jewelers
7 Military Veterans Forum

The Electronic Mall Page EM-1

. . . . . .
. The Electronic Mall (tm) .
. . . . . .
1 Introduction
2 New & Noteworthy (4/30/84)
3 Ordering Instructions

4 Directory of Merchants
5 Browse the Mall
6 Talk to the Mall Manager
7 ENTER THE ELECTRONIC MALL

CompuServe Page CIS-4

USER INFORMATION
1 What's New
2 Command Summary & Usage Tips
3 Feedback to CompuServe
4 Order Products, Guides, etc.
5 Change Terminal Settings
6 Change Your Password
7 Billing: Your Charges, Rates
Options, Making Changes
8 Logon Instructions & Numbers
9 Electronic Bounce Back

CompuServe Page IND-1

INDEX

1 Search for Topics of Interest
2 List ALL Indexed Topics
3 Quick Index List
4 Explanation of Index

Fig. 2 CompuServe's Menu Structure

JUST WHAT DOES AN INFORMATION UTILITY HAVE TO OFFER ME?

Now that you have had a chance to see the nuts and bolts of CompuServe's rate structure, access hours, logon procedures and menu design, let us turn to an examination of CompuServe as an information utility. The following list represents the current offerings of CompuServe and their associated "GO" codes or page numbers. This listing is extremely lengthy and is included here for two purposes. First, CompuServe offers an array of online information that is nothing short of astonishing when viewed in its entirety. Peruse the following index in order that you may develop a clearer mental picture of what is actually meant by the term "information utility." Since the index is quite skeletal, there will be some features that you probably won't understand. For example, "AVSIG.....SFP-6" means that the Aviator's Special Interest Group is found on Services For Professionals page 6. The second reason for including the index in the main body of this work is to point out to the reader that this listing has great content overlap with The Source, Delphi, and Dow Jones News/Retrieval Service. CompuServe's index of services is printed here so you can get an idea of the general types of services offered by all information utilities. In fairness to each utility though, it must be acknowledged that Delphi, for example, has some unique features that The Source doesn't have, and The Source, in turn, has some that CompuServe doesn't. The following is simply an introductory guide to information utility offerings in general. While very complete, it is not being

YOU CAN'T BE SERIOUS! THERE'S REALLY ALL OF THIS??!

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INDEX

COMPUSERVE INFORMATION SERVICE

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AID calculations:.....Go PCS-72
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ASCMD (SIG):.....Go SFP-7
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Agricultural news:....Go CNS-14
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AP Viewdata Wire.....Go APV
CompuServe.....Go GAM
Showtime.....Go SHO
European weather:.....Go CNS-17
Executive, terminal:.Go PCS-103
Expert, music:.....Go MUS
FAA reports:.....Go ASI-12
FOI Newsline:.....Go FOI
Facts, general:.....Go WBE
Family budget:.....Go IDS-6
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Family Matters Forum:Go HOM-144
Fantasy game:.....Go GAM-16
Farming:.....Go SFP-10, VIC
Fashions:.....Go GAN
Federal gov't news:
Associated Press News.Go APN-5
Washington Post.....Go TWP
Federal publications:....Go GPO
Fedwatch newsletter:.....Go MMS
Feedback, CompuServe:..Go CIS-8
Feedbacks:
College Board.....Go TCB-5
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Computers & Electron..Go CEM-8
dataFamiliae.....Go PFL-11, 13
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Huntington.....Go HNB-17
IDS.....Go IDS-243
Micro Advisor.....Go TMA-500
Microsoft News.....Go MCS-112
Multiple Choice.....Go TMC-31
Music.....Go MUS-502
Tandy.....Go TRS-15
Travel Fax.....Go ESC-19
Worldwide Exchanges...Go WWX-4
Fifth Avenue Shopper:....Go FTH
FILGE instructions:...Go CVP-23
Finance:.....Go FIN
Financial advice:.....Go TWP-12
Financial aid,college:Go TCB-14
Financial information:Go FIN-20
Financial insurance:...Go IDS-5
Financial news (AP):..Go IND-52
Financial news,micros:Go TMA-24
Financial services:...Go FIN-20
Fire Fighters' (SIG):.Go SFP-30
Fire prevention:.....Go SFP-30
Fireplaces, firewood:..Go GPO-9
First Aid:.....Go HRC
Fitness:.....Go GPO-5
Flight operations:....Go ASI-11
Flight plans:.....Go EMI
Flowers, ordering:.....Go FTH
Focal:.....Go PCS-76
Food & Drug Admin:.....Go FOI
Food information:
FDA.....Go FOI
Food storage.....Go GPO-7
For fitness.....Go GPO-5
Freezing.....Go GPO-7
Menu.....Go VIC, GPO, HRC
Recipes.....Go BHG
Football (AP wire):...Go APN-16
Football game:.....Go GAM-27
For sale:
Bulletin Board.....Go HOM-30
Cassette tapes.....Go NPR
Clothing, sport.....Go HAN
Consumer goods.....Go CUS
Fortran (XF4):.....Go PCS-80
Funds Management:.....Go UMC
Fur Trader game:.....Go GAM-36
Futures industry news:Go FIN-10
Futures prices:.....Go CNS-12
Games, computer:
Adventure.....Go GAM-11
Astrology.....Go GAM-45
Backgammon.....Go GAM-31
Banshi.....Go GAM-30
Biorhythms.....Go GAM-29
Blackjack.....Go GAM-13
Bridge.....Go GAM-18
Chess.....Go GAM-34
Civil War.....Go GAM-14
Concentration.....Go GAM-32
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Dice.....Go GAM-33
Eliza.....Go GAM-15
Fantasy.....Go GAM-16
FasterMind.....Go GAM-17
Football.....Go GAM-27
Fur Trader.....Go GAM-36
Golf.....Go GAM-21
Gomoku.....Go GAM-22
Hammurabi.....Go GAM-37
Hangman.....Go GAM-23
Lunar Lander.....Go GAM-24
Magic Cube solution..Go GAM-35
Maze.....Go GAM-38
Megawars.....Go GAM-20
Mugwump.....Go GAM-39
New Adventure.....Go GAM-12
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Games (SIG):.....Go HOM-143
Gandolf's Reports:.....Go GAN
Gardening:.....Go VIC
Gasoline, saving:...Go GPO-1131
General banking:.....Go HOM-45
Godiva chocolate:.....Go FTH
Gold futures prices:..Go CNS-12
Gold news:.....Go CNS-15
Golf, Belmont Golf Asso:.Go BEL
Golf, Official PGA Tour:
Biographies.....Go PGA
Players.....Go PGA
Statistics.....Go PGA
Golf (SIG):.....Go HOM-129
Gomoku game:.....Go GAM-22
Good Earth (SIG):....Go HOM-145
Grain prices:.....Go HCI-10
Grains futures:.....Go CNS-12
Ground water:.....Go WWA
Hammurabi game:.....Go GAM-37
HamNet (SIG):.....Go HOM-11
Hardware reviews:.....Go TMA
Handelmans' Athletic Sup:Go HAN
Health:.....Go HRC
Health Care:.....Go HRC
Health and fitness:....Go GPO-5
Health Resources:.....Go HRC
Health-Tex:.....Go HRC
Heath User's Group:...Go PCS-48
Heinold Commodities:.....Go HCI
Help:.....Go CIS-162
Help (documentation):..Go CIS-8
Hi-Tech Forum:.....Go CCC-150
Hockey (AP wire):.....Go APN-16
Home banking:.....Go HOM-45
Home finance:.....Go HOM-80
Home services:.....Go HOM
Home management programs:
Amortize a loan.....Go HOM-17
Calculate a raise....Go HOM-15
Checkbook balancer...Go HOM-14
Net worth.....Go HOM-16
Horticulture:....Go SFP-10, VIC
House plants:.....Go VIC
Howard Sams' Books:.....Go SAM
Humor, satire:.....Go KCS
Huntington, bank:.....Go HNB
Husbandry:.....Go SFP-10
IBM-PC (SIG):.....Go PCS-131
IDS:.....Go IDS
Immigration:.....Go Pan, ESC
Index:
CompuServe.....Go IND
Computer Periodical.....Go PER
Industries, farming:..Go SFP-10
Information, general:....Go WBE
Information, music:.....Go MUS
Insurance:.....Go IDS
Intelligence test:....Go TMC-28
Interest rate:.....Go MMS
Investment news:.....Go FIN-10
Investment News & Views:.Go INV
Investments:
MicroQuote.....Go FIN-20
Investors Diversified:...Go IDS
Job, in the home:....Go HOM-146
Jobs:
StL Post-Dispatch..Go SPD-1002
Jumbled words test:...Go TMC-43
LDOS (SIG):.....Go PCS-49
Languages on CompuServe:
Bliss.....Go PCS-74
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Legal Forum:.....Go SFP-40
Legal issues:.....Go SFP-40
Library, electronic:.....Go WBE
Lineprinter art:.....Go HOM-101
Liquid Green:.....Go UMC
Literary (SIG):.....Go HOM-136
Livestock futures:....Go CNS-12
Livestock prices:.....Go HCI-10
Lobby Letters:.....Go LLA
MMS Financial Analysis:..Go MMS
MNET-11 (SIG):.....Go PCS-53
Macro:.....Go PCS-76
Magazine, advertisers:...Go EBB
Magic Cube solution:..Go GAM-35
Manuals, documentation:Go CIS-8
Manufacturer's newsletters:
Atari.....Go ATR
Microsoft.....Go MCS
RCA.....Go RCA
Tandy.....Go TRS
Marine weather:.....Go WEA
Market prices:.....Go FIN-20
Massachusetts, banking:..Go SHW
Medical:
AAMSI Forum.....Go SFP-5

ASCMD Forum.....Go SFP-7
FOI Newsline.....Go FOI
Medical Records:.....Go HRC
Medicine, consumer:.....Go HRC
Metal futures prices:.Go CNS-12
Metal prices:.....Go HCI-10
Micro Advisor, The:.....Go TMA
Microcomputers:
Advice.....Go TMA
Atari.....Go ATR
Financial news.....Go TMA-24
General.....Go PCS-10
Microsoft.....Go MCS
RCA.....Go RCA
Tandy.....Go TRS
What's new in.....Go TMA-24
MicroQuote:.....Go FIN-20
Microsoft Newsletter:....Go MCS
Microsoft (SIG):.....Go PCS-145
Middlesex Daily News:....Go MDN
Money market:.....Go UMC
Money supply:.....Go MMS
Monthly charges:.....Go CIS-176
Mortgage budgeting:....Go GPO-4
Movie, cable TV:.....Go SHO
Movie reviews:
CompuServe.....Go NMM-1
Multiple Choice, the:....Go TMC
Music:.....Go MUS
Music Info. Service:.....Go MUS
Musus-Pascal (SIG):...Go PCS-55
NASA:.....Go HOM-127
NIPSIG:.....Go HOM-132
NWS weather:.....Go AWX
NYSE prices (MQUOTE):.Go FIN-20
Names of users:.....Go HOM-4
Nat'l Issues (SIG):..Go HOM-132
National Water Well Ass:.Go WWA
National Weather Service:Go AWX
Netwits:.....Go WIT
Netwits (SIG):.....Go WIT-100
New product news:
Popular Science.....Go PSP
The Micro Advisor....Go TMA-24
New services:.....Go NEW
News, CB:.....Go CUP
Newsletters:
Atari.....Go ATR
Commodore.....Go CBM
Microsoft.....Go MCS
RCA.....Go RCA
Tandy.....Go TRS
Newspapers:.....Go HOM-10
No. American weather:.Go CNS-17
Notices (Bullet):.....Go HOM-23
Nutritional analysis:Go GPO-401
OK level:.....Go PCS-71
OTC drugs:.....Go HRC
OTC prices (MQUOTE):..Go FIN-20
Official Airline Guide:..Go OAG
Ohio, banking:.....Go HNB
Ohio regional news:....Go APN-5
Ohio Scientific(SIG):Go PCS-125
Orch-90 music (SIG):..Go HOM-13
PGA Official Tour Guide:.Go PGA
PUG (Panasonic SIG):.Go PCS-114
Pan Am:.....Go PAN
Panasonic (SIG):.....Go PCS-114
Parenting & Family Life..Go PFL
Pascal (SIG):.....Go PCS-55
Password, changes:...Go CIS-175
Peak Delay Guide:.....Go PDG
Periodical Guide:.....Go PER
Personal computing:.....Go PCS
Personal finance:
Gov't publications....Go GPO-4
Home Management.....Go HOM-80
Investors Diversified.Go IDS-6
Personality profile:..Go TMC-17
Pilot weather:.....Go AWX
Plants:.....Go VIC
Politics:
AP Viewdata Wire.....Go APV
Middlesex Daily.....Go MDN
Washington Post.....Go TWP-15
Popular Electronics:.....Go CEM
Popular Science:
Energy.....Go PSE
New products.....Go PSP
Satellite TV.....Go PSP
Software reviews.....Go PSP
Pork prices:.....Go CNS-12
Precious metals:.....Go CNS-12
Precious metals news:.Go CNS-15
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Prime interest rate:.....Go HNB
Programming area:.....Go PCS-71
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Programs from users:..Go PCS-46
Programs for sale:....Go PCS-45
Public access:.....Go PCS-46
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RCA Newsletter:.....Go RCA
RCA (SIG):.....Go PCS-57
Radio, amateur:.....Go HOM-11
Radio Network:.....Go NPR
Radio Shack computers:...Go TRS
Rates, CompuServe:....Go CIS-53
Raylux Associates:.....Go RLA
Real estate, ads:

StL Post-Dispatch..Go SPD-1002
Recipes:.....Go BHG
Recipes (SIG):.....Go HOM-109
RecordKeeping, home:.Go GPO-228
Reference guide:.....Go WBE
Referral Service, law:Go SFP-40
Regulatory Affairs Prof:.Go FOI
Reservations, airline:
Travel America.....Go TTN
Resource, water:.....Go WWA
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Reviews, software:
Popular Science.....Go PSP-103
The Micro Advisor.....Go TMA-9
SAT test information:.Go TCB-18
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AAMSI.....Go SFP-5
ASCMD.....Go SFP-7
AVSIG.....Go SFP-6
Arcade.....Go HOM-138
Atari.....Go PCS-132
Author's.....Go PCS-117
CBIG.....Go HOM-9
CEMSIG.....Go CEM-450
Commodore.....Go PCS-116
Communications.....Go HOM-147
Cooks' Underground..Go HOM-109
CP/M Group.....Go PCS-47
Decwars.....Go HOM-111
Educators'.....Go HOM-137
Family Matters.....Go HOM-144
FireNet.....Go SFP-30
Games.....Go HOM-143
Golf.....Go HOM-129
Good Earth.....Go HOM-145
HamNet.....Go HOM-11
Hi-Tech Forum.....Go CCC-150
HUG (Heath).....Go PCS-48
IBM-PC.....Go PCS-131
LDOS TRS-80.....Go PCS-49
Legal Forum.....Go SFP-40
Literary.....Go HOM-136
MAUG (Apple).....Go PCS-51
Microsoft.....Go PCS-145
MNET-11.....Go PCS-53
MNET80 TRS-80.....Go PCS-54
MUSUS-Pascal.....Go PCS-55
Netwits.....Go WIT-100
NIPSIG.....Go HOM-132
ORCH-90.....Go HOM-13
OSI.....Go PCS-125
PUG (Panasonic).....Go PCS-114
RCA Group.....Go PCS-57
Space.....Go HOM-127
Sports.....Go HOM-110
TeleComm.....Go PCS-52
TRS-80 color.....Go PCS-126
VTOS ST80.....Go PCS-56
Work-at-Home.....Go HOM-146
St. Louis Post-Dispatch:.Go SPD
Sams, Howard Books:.....Go SAM
Satellite:.....Go NPR
Satellite TV signals:.Go PSP-36
Satire:.....Go KCS
Saving Accounts:.....Go HOM-45
Scott Adams' games:...Go GAM-28
Scramble game:.....Go GAM-43
Securities:
Information.....Go MMS
Self-employment:.....Go SBR
Self-Health:.....Go HRC
Shawmut, bank:.....Go SHW
Shop-at-home:.....Go HOM-40
Shopping, muscial:.....Go MUS
Showtime Entertainment:..Go SHO
Shuttle, space:.....Go HOM-127
Silly Fill-Ins:.....Go TMC-41
Silver futures prices:Go CNS-12
Silver news:.....Go CNS-15
Ski conditions:.....Go WEA
Small Business Reports:..Go SBR
Smoking and health:..Go GPO-398
Snobol:.....Go PCS-79
SOFTEX:.....Go PCS-45
Software Authors' SIG:Go PCS117
Software Exchange:....Go PCS-40
Software reviews:
Popular Science.....Go PSP-103
The Micro Advisor.....Go TMA-9
So. American weather:.Go CNS-17
Space (SIG):.....Go HOM-127
Special Interest Groups:
Access to.Go HOM-50, Go PCS-50
Commercial.....Go PCS-50
Descriptions.Go HOM-50, PCS-50
General.....Go HOM-50
Hardware related.....Go PCS-50
Instructions.Go HOM-51, PCS-58
Software related.....Go PCS-50
Sport, clothes:.....Go HAN
Sports news:
Golf.....Go PGA
StL Post-Dispatch..Go SPD-1005
Scores (AP).....Go APN-16
Sports (SIG):.....Go HOM-110
Sports quiz:.....Go TMC-42
Spotlight, CBers:.....Go CUP
Standard & Poors:.....Go FIN-20

Star Trek game:.....Go GAM-26
State capital games:..Go TMC-44
Stereos for sale:.....Go CUS
Stevens Business Reports:Go SBR
Stocks, bonds:
 MicroQuote.....Go FIN-20
 Quick Quote.....Go FIN-20
 Raylux advisory.....Go RLA
Sugar futures prices:.Go CNS-12
TMC for kids!:.....Go TMC-27
TRS-80 color (SIG):..Go PCS-126
TRS-80 computers:.....Go TRS
TRS-80, MNET80 (SIG):.Go PCS-54
TRS-80, programs for:.Go PCS-45
Tandy Corp. news:.....Go TRS
Technical books:.....Go SAM
TeleComm (SIG):.....Go PCS-52
Telephone access:....Go CIS-177
Tele-Traveler Network:...Go TTN
Tennessee, banking:..Go HOM-141
Terminal parameters:...Go CIS-6
Terminal software:...Go PCS-103
Terminal types:.....Go CIS-6
Tests, children:.....Go TMC-27
Tests, interactive:....Go TMC-4
Tests, SAT:.....Go TCB-18
Text editors:.....Go PCS-82
The College Board:
 Adult education.....Go TCB-13
 Choosing a college...Go TCB-17
 Financial aid.....Go TCB-12
 Publications of.....Go TCB-15
 SAT test information.Go TCB-18
The National Satirist:...Go KCS
Time used:.....Go CIS-176
TODAY, advertisers:.....Go EBB
Trading, commodities:.Go FIN-10
Travel:
 Department of State.....Go DOS
 Official Airline Guide..Go OAG
 Pan Am.....Go PAN
 Travel America.....Go TTN
 Travel Fax.....Go ESC
 Worldwide Exchanges.....Go WWX
Travel, abroad:
 Department of State.....Go DOS
 Official Airline Guide..Go OAG
 Pan Am.....Go PAN
 Travel America.....Go TTN
 Travel Fax.....Go ESC
Travel, advisories:.....Go DOS
Travel, airline guide:...Go OAG
Travel America:.....Go TTN
Travel Fax:.....Go ESC
Traveler, airport guide:.Go PDG
Trivia for kids:.....Go TMC-45
Trivia unlimited test:Go TMC-16
UCSD Pascal Group:....Go PCS-55
USDA Grades:.....Go GPO-10
USDA standards:
 Meat.....Go GPO-1340
 Poultry.....Go GPO-1405
U.S. Depart. of State:...Go DOS
U.S. News:
 Middlesex Daily.....Go MDN
 StL Post-Dispatch..Go SPD-1005
 Washington Post.....Go TWP
United American Bank:Go HOM-141
Used cars, buying:..Go GPO-1199
User directory:.....Go HOM-4
User information:.....Go CIS-4
User's programs:.....Go PCS-30
VIC-20 (SIG):.....Go PCS-116
VTOS ST80 (SIG):.....Go PCS-56
Vacationing:.....Go WWX
Value Line Database:..Go FIN-20
Vegetables:.....Go VIC
Victory Garden:.....Go VIC
Video information:.....Go VIF
Videotex, views on:..Go CVP-154
VIDTEX executive:....Go PCS-103
Viewpoint, CompuServe:.Go CVP-5
Want ads (Bullet):....Go HOM-23
War games:
 Decwars.....Go GAM-19
 Megawars.....Go GAM-20
 Space War.....Go GAM-25
Washington, D.C. area:
 Middlesex Daily.....Go MDN
 StL Post-Dispatch..Go SPD-1005
 Washington Post.....Go TWP-12
Washington Post:.....Go TWP
Water, ground:.....Go WWA
Waterline:.....Go WWA
Weather:
 AP Viewdata Wire.....Go APV
 African weather.....Go CNS-17
 Asian weather.....Go CNS-17
 Aviation weather.....Go AWX
 European weather.....Go CNS-17
 Extended forecasts.....Go WEA
 N. American weather..Go CNS-17
 S. American weather..Go CNS-17
 Sports forecasts.....Go WEA
 State forecasts.....Go WEA
What's New:.....Go NEW
Wheat prices:.....Go CNS-12
Wine information:.....Go VIN
Wire service news:
 (see Associated Press access)

Word processors:.....Go PCS-86
Work-at-Home (SIG):..Go HOM-146
World Book Encyclopedia:.Go WBE
World news:
 AP Viewdata Wire.....Go APV
 Associated Press.....Go IND-52
 Washington Post.....Go TWP-16
Worldwide Exchanges:.....Go WWX
Yachts:.....Go WWX

ASSOCIATED PRESS NEWS ACCESS

Financial wire:
 Middlesex Daily.....Go MDN
 StL Post-Dispatch.....Go SPD
 Washington Post.....Go TWP
Sports:
 Middlesex Daily.....Go MDN
 StL Post-Dispatch.....Go SPD
 Washington Post.....Go TWP
U.S. News:
 Middlesex Daily.....Go MDN
 StL Post-Dispatch.....Go SPD
 Washington Post.....Go TWP
Washington News:
 Middlesex Daily.....Go MDN
 StL Post-Dispatch.....Go SPD
 Washington Post.....Go TWP
World News:
 Middlesex Daily.....Go MDN
 StL Post-Dispatch.....Go SPD
 Washington Post.....Go TWP

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touted as necessarily the best available service, nor the worst.

WE'VE COME A LONG WAY FROM, "10-4 THERE, GOOD BUDDY!!"

Educators and students alike, simply must not miss out on trying CompuServe's Citizen's Band Radio Simulator. If you are new to telecomputing, CB will prove to be an experience that you will not likely forget. While The Source has its "Chat" and "Parti" version of teleconferencing and Delphi has "Conference", CompuServe's CB, in this author's opinion, wins hands-down as the simplest, most free-wheeling, and unrestrained of the lot. We all remember the CB craze that hit the U.S. in the seventies; CompuServe has created an amazing 36 channel computerized rendition of a citizen's band radio. No, you don't talk; you just type, and fortunately you don't have to speak the old "CB-ese" of "Good buddies", and "Smokies". Everything you say is instantly transmitted to everyone who happens to be on the same channel as you. The channel you select is entirely up to you although CIS makes some suggestions as to their use so that birds of a feather can more easily flock together. If you like, you can be boring and use your regular name, but CB is a land of anonymous adventure, populated by the likes of, "The Quantum Knight", "Captain James T. Kirk", and "PsyDoc." Undoubtedly, dissertations will be written on the types of things people will say under conditions of electronic anonymity. While I'm painting a picture of CB that implies it is a rollicking good time, one must surely realize the potential educational use. Teachers, administrators, and students can now communicate instantaneously with kindred spirits from every state in the union, Puerto Rico,

and Canada. One doesn't have to use a mythological handle and discuss nothing more cerebral than the latest arcade game. On the contrary, here is a perfect, affordable medium through which the education community can meet to exchange their thoughts, ideas, and resources. Through the use of a command called "/Talk", two individuals can communicate with each other in complete electronic solitude. If you want a large conference, just notify the participants through "E-MAIL" (electronic mail; also available on CIS) and tell them to meet on say, CB channel 4 at 7:30 Thursday evening. Once your group has electronically arrived and exchanged a few minutes of small talk (small type?), you can all scramble the conversation with a certain key word the participants were told about beforehand. Let's suppose the word is "chalkdust". Members need only type "/SCR CHALKDUST" and their comments will be electronically scrambled by CompuServe so that non-participants are excluded from the conference! At the conclusion of the teleconference simply enter /UNS (unscramble) and you can once again enjoy the light and often very humorous conversations that abound on open-channel CB. It doesn't take a lot of imagination to come up with more educational uses for CompuServe's CB simulator.

Like skydiving, CB delivers its punch best when it is experienced firsthand rather than simply described. The following is a download of an actual CB conversation involving people from many different states, all talking at the same time, on an ncredible array of topics. Let's take a look.

Transcript of an Actual CB Simulator Session

Explanations are included throughout the text. They can be distinguished by their use of upper case letters in parentheses.

(SIGNING ON TO COMPUSERVE)

^C (CTRL-C BECAUSE I LIVE IN COLUMBUS AND CALLED CIS DIRECT)
User ID: 72366,444
Password: (MY RESPONSE IS NOT SHOWN BECAUSE OF HALF-DUPLEXING)

(COMPUSERVE VALIDATES MY ID NUMBER AND PASSWORD AND THEN ALLOWS ME TO ENTER THE SYSTEM.)

CompuServe Information Service
20:03 EST Tuesday 10-Apr-84

What's New This Week: (BRIEF ANNOUNCEMENTS OF NEW ITEMS/EVENTS)

* Reservations Rolling in for CB Party
* New VIDTEX for Stock Charting
* Writer's SIG Conference (SIG=SPECIAL INTEREST GROUP)
* SAVINGS-SCAN Sirious Sale
* Easter Specials in FTH
* Comp-U-Store's Original Prints
* IRS Tax Forms List Now Online
* Electronic Mail Debuts

Key S or (ENTER) to continue! GO CB-1 (GO DIRECTLY TO CB)

Request Recorded, (COMPUTER IS TRANSFERRING ME TO CB SIMULATOR)
One Moment, Please

CB Information Page CB-1

Thank you for Waiting
CB Simulator Ver 3(61) Band A
What's your handle? ((Care Bear)) (MY CB "HANDLE")

(Channel) users tuned in
(1)16,(9)4,(12)5,(17)2,(33)6

((1)16 MEANS THERE ARE 16 PEOPLE TALKING ON CHANNEL 1)

Which channel: 1 (I WANT TO TALK WITH THOSE ON CHANNEL #1)

(CONVERSATION BEGINS...)

(NOTICE THAT MANY CONVERSATIONS ARE GOING ON SIMULTANEOUSLY. IT TAKES A BIT OF PRACTICE TO FIGURE OUT WHO'S TALKING TO WHOM. IT'S MUCH SIMPLER WHEN ONE IS ACTUALLY INVOLVED IN THE CONVERSATION.

(A1,J.J.) Just wanted to holler at everybody!
(A1,J.J.) Bye now...
(A1, TONY) Sandy==> like to talk a bit? ("TALK" = SPEAK PRIVATELY.)
(A1, TONY) what's your number? ("TALK" REQUIRES YOUR "JOB" NUMBER.)
(A1,SANDY) 142 joe (SANDY IS TELLING JOE HER JOB NUMBER)
(A1, TONY) Sandy==> I'm 157
(A1,annie) joe, very good!
(A1,JEFF) I'M JEFF
(A1,NINJA *) HI SANDY
(A1,Capt.Ahab) u/sta (CHECKING ID'S AND LOCATIONS OF TALKERS)
(A1, TONY) :::talk::: (TONY IS LEAVING GROUP TO TALK PRIVATELY.)
(A1,ARAGORN) annie, ever been to the sandbar??
(A1,JEFF) I 'M STILL JEFF
(A1,annie) aragorn, you go there?
(A1,DULL MALE) WELL, I'M GONNA GO WATCH THE A TEAM
(A1,-Venture Joe-) snore:::: (CB SLANG FOR BOREDOM)
(A1,ARAGORN) annie, its in balt., i think
(A1,Capt.Ahab) Evening All
(A1,-Venture Joe-) send me some, annie
(A1,annie) hi ahab
(A1,((Care Bear))) Hello Captain! How are you?
(A1,JEFF) JOE, JOIN THE COFFEE GENERATION.
(A1,FFEJ) CAPT I GOT YOUR PARROT
(A1,annie) ok joe, it's in the mail
(A1,Capt.Ahab) Good Care, and you?
(A1,Mad Max) ggggggggggrrrrrrrrrrrrrrr
(A1,ARAGORN) annie, say Manican last week at sandbar
(A1,lynda) Hi
(A1,((Care Bear))) Doing fine on a slow Columbus saturday Cap'n.
(A1,-Venture Joe-) jeff, I hate those commercials, they turn me psychotic!
(A1,annie) ffej, where do you have his parrot
(A1,Capt.Ahab) (whatever ffej means)
(A1,JEFF) HI LYNDA
(A1,Peter) LYNDA: HI
(A1,ARAGORN) Hi lynda
(A1,FFEJ) ASK THE PARROT

/Ust (I'M ASKING FOR INFORMATION ON WHO IS USING CB AT THIS MOMENT. IT STANDS FOR "USER STATUS."

(THE FOLLOWING DEFINITIONS WILL HELP YOU INTERPRET THE RESULTS OF TYPING THE COMMAND "/UST" THAT IS DISPLAYED AS A TABLE BELOW. TYPING TEXT THAT IS NOT PRECEDED BY A "/" WILL GO OUT TO EVERYONE AS CONVERSATION. STATEMENTS SUCH AS "/STA" OR "/TUN" ARE COMMANDS TO THE SYSTEM, NOT GENERAL CONVERSATION. "/STA" WILL SHOW YOU A LIST OF ALL ACTIVE CHANNELS AND HOW MANY USERS ARE ON EACH OF THEM. "/TUN" WILL "TUNE" YOU INTO WHATEVER STATION (1-36), THAT YOU DESIRE)

"JOB" IS YOUR COMPUTER ASSIGNED NUMBER FOR "TALKING".

"USER ID" IS USEFUL FOR CONTACTING PEOPLE WITH ELECTRONIC MAIL. IT IS ESSENTIALLY THE SAME AS THEIR ADDRESS.

"NOD" IS THE COMPUTER NODE THAT DISTANT USERS ARE TIED INTO.
FOR EXAMPLE, MIA IS MIAMI, NYC IS NEW YORK CITY, DEN IS DENVER,
AND SO ON.

"TLK" IS BLANK IF THE PERSON IS A PART OF THE GENERAL GROUP.
IF THERE IS AN ASTERISK "*" NEXT TO THEIR NAME, THEY ARE IN
PRIVATE TALK WITH SOMEONE IN THE SYSTEM AND CANNOT BE REACHED.

```
Job   User ID      Nod Ch Tlk Handle
--- ------------ --- -- --- ------------
 35 72436,1545   QFJ  1      -Venture Joe-
 49 72416,550    MIA  1      SUZANNE
 50 73336,1617   NYC 17  *   MAD DOG ("MAD DOG'S" NODE = NEW YORK)
137 75465,67     DCA  1      annie
142 72376,2472   MIA  1  *   SANDY    (SANDY IS IN PRIVATE TALK "*")
145 72446,3057   ARL 33  *   ARCHER
146 70446,572    DEN  1      Mad Max
149 72356,333    FYL 33      9ER
152 71635,522    AMV  1      wade     (WADE'S JOB NUMBER IS 152)
154 75715,116    ARL 33  *   Riptide
157 71675,1063   BOS  1  *   TONY     (TONY'S ID IS 71675,522)
158 71715,471    ATL 33      IONICS
161 70150,503    ANN  1  *    D'ArchAngel
163 70215,443    NYF  1  *   )(  /Talkin' Lady
168 76003,544    CSJ  1      EASY MONEY
169 74425,344    BTM  1      ARAGORN
171 72366,444    CSG  1      <<Care Bear>> (CURRENTLY ON CHANNEL 1)
172 71116,647    ORL 33      FLYING HIGH
173 74166,3627   NYC 17  *   SPACE ACE
174 73175,304    LAZ  1      Capt.Ahab
176 72576,444    QFK 17      dude
181 71316,204    DCA  1      ***merlin***
190 72456,2642   NYC  1      RAMROD
192 70310,235    PRV  1      Peter
193 70156,1266   CNC  1      FFEJ
194 72626,2605   SPM  1      lynda
198 71066,1315   LOM  1      JEFF
201 73165,263    HAK  1  *   SPOCK  (SPOCK IS ALSO IN "TALK")
202 73475,372    WPK 17      Risky Biz
207 71336,743    WPL  1      snowman
```

(CONVERSATION AUTOMATICALLY RESUMES AT THE END OF THE LIST)

```
(A1,annie) joe, strong stuff, huh?
(A1,ENCHANTRESS) Somebody wants to talk,please hold on
(A1,FFEJ) RIGHT ON
(A1,-Venture Joe-) snoewman??????
(A1,annie) hi enchantress
(A1,TOMY) HI ALL
(A1,Thumper) State of Excitement, here
(A1,Capt.Ahab) u/talk 202
(A1,Peter) :::BACK::: (PETER IS ANNOUNCING HIS RETURN FROM TALK)
(A1,-Venture Joe-) (not literally, just cold)
(A1,PHOTO FLASHER*) ENCHANTRESS, wow did i just get a COMPLEX!!!!
```

```
/sta (CHECKING TO SEE WHAT CHANNELS ARE ACTIVE NOW)

(1)12#,(5)2,(17)10,(23)1,(33)10  (COMPUSERVE'S RESPONSE)

/tun 17 (CHANGING FROM CHANNEL #1 TO CHANNEL #17)

(A17,Tony) He mellissa, where u from
(A17,***DAWNE***) HI GOLD
(A17,Melissa) I went to VH too, where'd you sit?
(A17, Space Cadet) I agree with Van Halen
(A17,CHINA GIRL) HI DAWNE
(A17,***DAWNE***) HI CHINA
(A17,Melissa) Hi tony, from pitts, you?
(A17, Space Cadet) Hi Dawne..
(A17,** Super Rocker **) i forget
(A17,***DAWNE***) VAN HALEN RULES
(A17,Tony) Peoria, IL
(A17,***DAWNE***) GOLD:OKLAHOMA
(A17,Gold Canyon 340) Rules WHAT?!
(A17,***DAWNE***) HOW BOUT BILLY IDOL?
(A17,CHINA GIRL) :::LEAVING:::    (EXITING FROM THIS CHANNEL)
(A17,Melissa) I like scorpians
(A17,CHINA GIRL) :::GONE:::
(A17,Tony) Derek...wait
(A17,Melissa) anybody wanna talk?

/job (ASKING COMPUSERVE TO TELL ME MY COMPUTER-ASSIGNED "JOB"
NUMBER)
171  (COMPUSERVE RESPONDS WITH "171")

(A17,<<Care Bear>>) Melissa, my job is 171 (INDICATING I WILL
TALK)
(A17,Tony) I'll talk to you
(A17, Space Cadet) Can't. I'm waiting for Shark Fin Blue...

*** Please /TALK with Job 224 [72436,671] Melissa (MELISSA
CONTACTS ME)

/Talk 224 (INDICATES THAT I WANT TO TALK WITH JOB #224:MELISSA)

Job 224 [72436,671] Melissa is now in contact
(Use ^P to break contact)  (^P ON AN APPLE IS "CONTROL-P")

(NOTE: THERE ARE NO OTHER SPEAKERS: "TALK" IS A PRIVATE
CONFERENCE.)
THE FORWARD ARROW ")" IS ME, AND THE "(" IS MELISSA.

>Hello, Melissa!
<Hi Bear
>Where r u ?  ( CB SHORTHAND FOR "ARE YOU": TIME'S MONEY)
<So whats up?
>Same old thing
<I'm in Pittsburgh, how old?
>School as usual for me
>31 and at Ohio State
```

```
>How far along?
<Courses do you take?
>How many b-days for u?
>Working on Ph.D. in science education
<I'am only in ninth grade
<15 yrs old
<Impressive
>No, not really, but thank you.
<Really? I'm flunking our of science
>Sorry to hear it.
<Well, good luck! Bye...
Job 224 has broken off (MELISSA HAS PRESSED "CONTROL-P" AND LEFT
TALK)
/exi  (COMMAND TO EXIT CB SIMULATOR-END OF SESSION
-----------------------------------------------------------------

(THE FOLLOWING IS A GUIDELINE TO THE USE OF CB CHANNELS)

Channel assignments:
    1  Adult
    9  Help
   17  Kids: 17 and under
   19  Calling channel
   22  ROM at the Top
   23  Kaiamaki Lounge
   24  2-bit Saloon
30-36  Conferences
** All others unrestricted

(THE FOLLOWING ARE THE COMMANDS USED TO OPERATE CB.

Prefix commands with a "/"
/TUN # - Tunes channel # (1-36)
/TALK # - Talk privately w/ job#
/MON 1,4 - Listen to extra chnls (YOU "LISTEN" BUT CAN'T TALK)
/UNM 7,3 - Unmonitor channels
/STA - Type channel status
/TIM - Type time, day, and date
/UST - User STatus typeout     (LISTS ID NUMBERS AND LOCATION)
/UST # - User STatus for Chn #
/EXI - Exit CB Simulator
/OFF - Exit CB and log off
/WHO - Type PPN of last talker (IDENTIFIES LAST TALKER)
/HAN - Change handle
/SCR xyz - Scramble on key "xyz" (SCRAMBLES CONVERSATION)
/SMC xyz - Scr & Monitor Clear
/XCL xyz - Xmt CLear; unscr rcvr
/UNS - Unscramble (both clear)
/SQU abc - Squelch handle "abc" (SUPRESS OBNOXIOUS USER)
/SBU #,# - Squelch by User ID
/JOB - your job #
/PPN - Type PPNs w/ messages
/NOPPN - Turn off /PPN
/BAND x - Switch to Band "x"  (MOVES BETWEEN BAND "A" AND "B")
/HELP - Type this message
```

COMPUSERVE'S SIGS

Chatting back and forth on CompuServe's CB Simulator can be great fun, and of significant educational value. But what if you wish to contact a group of users that all have some particular common interest? You've come to the right place, for CompuServe has developed a computer program that has established a number of online "SIGS", or Special Interest Groups.

In contrast to CB, where you have no idea who you might be talking with (unless prior arrangements have been made), SIGs are devoted to one general area of interest. Essentially, they are electronic "clubs" and come in a wide variety of forms. They all operate in the same manner, and each one will allow you to "talk" with individuals who share the same interests as you. For example, there are SIGs for sports, telecommunications, education, music, games, family matters, cooking, and travel, just to mention a few. Basically, SIGs are divided into three major areas; teleconferencing, "bulletin-board" style message posting, and databases of downloadable programs or text files.

Like the private Computerized Bulletin Board Systems (CBBS's), all SIGs have a "SYSOP" (siss'-op) or "SYStem OPerator who generally oversees the operation of the SIG (Sturtz and Williams, 1983). At their (not CompuServe's) discretion, they may impose a modest membership fee. This is the case in only a few of CompuServe's SIGS, but you should be aware.

In any case, it is a good idea to get to know the SYSOP of any SIG you might be interested in, for they may be of great help in navigating through the system. Feel free to leave them a message concerning your questions or general remarks. You will find that SYSOPS are very helpful and conscientious individuals who will go to great lengths to assist you. Since they read all of the bulletins that are posted on the SIG, simply address your questions or comments to "SYSOP".

All SIGs allow you to leave messages that others may read and to which they can respond if they feel they have information you might consider valuable. For instance, you might wish to leave a message inquiring about establishing modem "pen pals" for your students. You need only type in your question (up to 2,500 characters or 96 lines) and the SIG will automatically put your name and ID number with it so other members may contact you via the same SIG, E-MAIL, or CB. The SIG also prompts you for a header, or brief (24 characters) description of your message's general subject matter. This also allows others to more easily respond to your needs by simply scanning the titles of messages rather than reading them in their entirety. If someone has elected to answer your call for help via the SIG, you will be notified that you have at least one reply to your message(s) when you sign on again. You are encouraged to browse through the messages left by others and reply to any that you wish.

In addition to leaving and reading messages like a bulletin board, most SIGs hold online, real-time, "conferences", where you

can hold CB-like meetings with those of similar interests. These conferences are generally scheduled and announced in advance to allow members to participate more fully. Teleconferencing could clearly help to bring educators together by electronically bridging the geographic distance between them (Cross, 1983). Conferences use two CB channels and the commands for their use are exactly the same as in regular CB. A particularly nice feature of the SIG program is that at any time you are in a SIG, you may type in the "/UST" (User STatus) command and receive a list of users and theirs ID's. By using the "SEN" (SENd) command you may ask any of the current users to join you on SIG CB for an impromptu, real-time conference.

SIGS often have programs or text files of information maintained in their "Access" database that you may download to your system. You may also submit programs and/or text files to the SIG where the SYSOP (acting as editor) may elect to include your information in the access file for others.

As an added service all SIGS maintain an "interest log" in which users may include their names, ID's and particular fields of interest or expertise. This log can further assist the user in quickly identifying those of similar interest.

Discussion forums can be reached by typing "GO HOM-50" or "GO PCS-50". Let's examine the education and telecommunication forums as they appear in actual operation. As in our discussion of CB, the session transcribed below has been edited for clarity

and has explanatory notations throughout (uppercase letters in parentheses). This brief tour through the education and telecommunication SIGs is very brief when compared to all the features offered by the SIG program. It is intended only to give you an idea of the educational usefulness of CompuServe's SIGs.

In this example we will jump directly to CompuServe page HOM-50, where we find the following listing of discussion forums:

```
CompuServe              Page HOM-50

    DISCUSSION FORUMS
1 CBers        10 Literary
2 HamNet       11 Educators
3 Netwits      12 Arcade
4 Orch 90      13 Games
5 Sports       14 Family Matters
6 Cooking      15 Good Earth
7 Travel       16 Work-at-Home
8 Space        17 Music
9 Issues       18 Food Buyline
   19 Instructions
   20 Descriptions

Input a number or key
<ENTER> for more choices
!11                  (I'VE SELECTED CHOICE #11: THE EDUCATOR'S SIG)

Request Recorded, (COMPUSERVE IS TRANSFERRING ME TO EDUCATOR-SIG)
One Moment, Please
Thank you for Waiting


CompuServe              Page HOM-137

Welcome to Education Forum, V. 2C(10)

Name:      Doug Schooler 72366,444 (I'M AUTOMATICALLY IDENTIFIED)
Last on:   27-Apr-84  22:10:16     (DATE OF MY LAST LOGON)
High msg#: 4727

You are user number 12190
System contains messages
4401 to  4739

Enter blank line for menu:          (I TYPED <RETURN>)
```

```
Education Forum
Function menu:
1 (L)  Leave a message
2 (R)  Read messages
3 (RN) Read new messages

5 (B)  Read bulletins
6 (CO) Online conference


9 (OP) Change your SIG options
0 (E)  Exit from this SIG

Enter selection or H for help: 2    (READ MESSAGES)
System contains messages
4401 to  4739
Starting message number: 4729   (I SELECTED #4729 TO READ FIRST)


(MESSAGE NUMBER 4729)

 #: 4729       Sec. 0 - General Interest
Sb: #4404-PEN PALS                (SUBJECT AREA)
    27-Apr-84  01:19:24           (TIME/DATE LEFT)
Fm: Laura S. Abrams 75465,1223    (AUTHOR)
To: OWEN ROBBINS 74156,1525       (RECEIVER)

I am a Special Educator of LD elementary school students in
Belmont, MA. I would be interested in involving my students in a
Modem Pen-Pal program. Please leave contact info on the SIG and
let us pursue this further. Looking forward to hearing from you!

(THE FOLLOWING MENU IS AUTOMATICALLY DISPLAYED)

Read Option menu:
1 (C)  Read next message
2 (RE) Reply to current message
3 (T)  Return to Function menu
4 (D)  Delete this message

Enter selection or H for help: 1 (READ NEXT MESSAGE: THE NUMBER
IS NOT SEQUENTIAL DUE TO EDITING)


 #: 4725       Sec. 2 - Administration
Sb: Teacher Evaluation
    26-Apr-84  14:11:23
Fm: PHI DELTA KAPPA 74116,3542
To: EVERYONE

Do you know of successful teacher evaluation systems?  Criteria:
1) in operation for at least two years; 2) teachers happy; 3)
administration happy.  We would like to see sample
materials--record keeping forms, policy statements, etc.
```

#: 4732 Sec. 0 - General Interest
Sb: Fundraisers
27-Apr-84 22:01:37
Fm: Nancy Cooper 73016,1406
To: All members

Are there any other fundraisers among the educators in this sig?

#: 4734 Sec. 3 - Logo
Sb: #4708-User Groups
27-Apr-84 22:55:49
Fm: Henry Halff 72415,1463
To: Andrew Keith 71526,1541

The National Logo Exchange has been quite useful to us. The Young People's Logo Assn is a bit too simple to be fo interest for any period of time. We joined Friends of Logo and Lisp, and haven't heard a word from them. The Logo SIG of Washington Apple Pi here in DC is quite active.

#: 4735 Sec. 5 - C.A.I.
Sb: SAT prep
27-Apr-84 23:58:25
Fm: Larry Krengel 71006,1044
To: Ron Stoloff 72435,416

Ron - I was reading over some old messages and noticed one from you about the Krell SAT prep program. I am writing a magazine article about computers and the SAT. Do you know of someone who has used this the Krell program. I would be interested in talking with such a person... Thanks for any help you can be.
Larry Krengel

#: 4736 Sec. 0 - General Interest
Sb: #Research info.
28-Apr-84 14:43:09
Fm: JEFFREY L. FAZIO 70216,203
To: All

I am currently doing undergraduate (prelegal) studies and am now writing an essay on the socioeconomic effects of illcit drugs. My problem is that I can find no research information that fulfills my needs. What I am looking for is a statistical evaluation regarding the costs to society (in terms of time and money) that drug-related crimes create. More specifically, the costs of the treatment programs, court hearings and losses of revenue to businesses. Can anyone help? It would be very much appreciated.

Thanks,
J. Fazio

```
*** There is a reply:  (COMPUSERVE ANNOUNCES A REPLY TO MESSAGE)
        4738           (MESSAGE REPLY NUMBER)


 #: 4738       Sec. 0 - General Interest
Sb: #4736-Research info.
    28-Apr-84  16:53:25
Fm: Ric Hoogestraat 72446,3037
To: JEFFREY L. FAZIO     70216,203

Jeffrey,
     Try using one of the databases from DIALOG Information
Services. They handle over 200 different db's including Legal
Resource Index!
          Ric


Read Option menu:
1 (C)  Read next message
2 (RE) Reply to current message
3 (T)  Return to Function menu


Enter selection or H for help: 3  (RETURN TO FUNCTION MENU)
Education Forum
Function menu:
1 (L)  Leave a message
2 (R)  Read messages
3 (RN) Read new messages

5 (B)  Read bulletins
6 (CO) Online conference


9 (OP) Change your SIG options
0 (E)  Exit from this SIG

Enter selection or H for help: 0 (EXIT FROM SIG)

Exiting at 29-Apr-84  01:22:35
Last message on system: 4739
High message retrieved: 4739
Thank you for visiting Education Forum

!OFF       (SIGNING OFF COMPUSERVE ENTIRELY)

Off at 22:12 EST 27-Apr-84
Connect time = 0:11  (ELEVEN MINUTES CONNECT TIME)
```

In the next section we are logging onto the Telecommunications SIG found on CompuServe page PCS-52 (PSC-50 which was mentioned earlier, simply gave us the menu option to

move to PCS-52) In this section you will see the response to a general notice the author left announcing that this manuscript was in preparation and that he welcomed the thoughts of others in order to more clearly demonstrate the interactive nature of CompuServe's SIGs.

Upon entering the Telecommunications SIG we are presented with a menu selection format identical to that of the education forum. This is helpful to the new user in that once you've learned how to navigate through one SIG, you have a pretty clear concept of how to use them all.

CompuServe Page PCS-52

Request Recorded,
One Moment, Please
Thank you for Waiting

Welcome to TeleComm Group, V. 2C(10)

Name: DOUG SCHOOLER 72366,444
Last on: 27-Apr-84 23:12:44
High msg#: 8112

You are user number 36942
System contains messages
7898 to 8230

You have 2 messages waiting: (I HAD LEFT THE MESSAGE DESCRIBED ABOVE AND WAS AUTOMATICALLY NOTIFIED OF WAITING MESSAGES ALONG WITH THEIR SENDER'S NAME, ID, SUBJECT MATTER AND DATE OF REPLY)

(GENERAL HEADERS OF REPLIES #1, & #2)

#: 8126 Sec. 0 - General
Sb: #8112-TELECONFERENCING
28-Apr-84 01:57:18
Fm: ROBERT RICE 72436,2643

```
 #: 8161       Sec. 0 - General
Sb: #8112-TELECONFERENCING
    30-Apr-84  17:38:33
Fm: SYSOP/Mark 76703,447  (FROM THE SYSTEM OPERATOR)

These messages have been marked
for retrieval from Function menu
selection 4


Enter blank line for menu:
TeleComm Group
Function menu:
1 (L)  Leave a message
2 (R)  Read messages
3 (RN) Read new messages
4 (RM) Read waiting messages
5 (B)  Read bulletins
6 (CO) Online conference


9 (OP) Change your SIG options
0 (E)  Exit from this SIG

Enter selection or H for help: 4 (READ WAITING MESSAGES)

 #: 8126       Sec. 0 - General
Sb: #8112-TELECONFERENCING
    28-Apr-84  01:57:18
Fm: ROBERT RICE 72436,2642
To: DOUG SCHOOLER   72366,444

     I believe that this form of communication is still in its
infancy stage, but as more persons become aware of computers,
modems and data bases (including BBS'S) then I can se this method
of communication being much more refined and sofisticated in the
dimensions of its use. I find that a lot of technical questions
can be answered here that would be hard to find otherwise.  I can
locate the "experts" faster here than thru other means.  Maybe
others do not find this to be their experience, but it certainly
has been mine.

Best wishes,
Bob

Read Option menu:
1 (C)  Read next message
2 (RE) Reply to current message
3 (T)  Return to Function menu
4 (D)  Delete this message
Enter selection or H for help: 1    (READ NEXT MESSAGE)
```

#: 8161 Sec. 0 - General
Sb: #8112-TELECONFERENCING
30-Apr-84 17:38:33
Fm: SYSOP/Mark 76703,447 (FROM SYSTEM OPERATOR)
To: DOUG SCHOOLER 72366,444

Doug -

The impact of microcomputer telecommunications has yet to be felt. The very idea that I am no longer limited to just the amount of information stored in my diskettes or my system memory is incredible! I can, by dialing a phone number, have access to computers and information networks whose size defy the imagination. I have used these networks to meet notables in the software, hardware, and literary fields. I have made several new friends.

But more than that, I have profited both myself and my customers. 5 days a week, they have "instant" access to me here. And I have the ability to interface to them easily, in return.

The information database, the comraderie, and the response times cannot be equaled. I can look up the prices, make airline and hotel reservations, and never get "put on hold"...

-- Mark

If you type "XA" at a function prompt, you are delivered to the "ACCESS" database mentioned earlier. This can be a real goldmine for financially strapped educators. Often, several databases are available for your perusal, divided into different areas of interest. You will be prompted for the "AGE:" of the search. This simply allows you to browse files that are no more than "X" days old. You will also be asked, "KEY:" or keywords under which you wish to search. You may ignore both prompts and examine the entire database by pressing <RETURN>.

The following download illustrates the general functioning of the access databases and cites two educationally oriented entries.

```
XA 0 - General Interest :

1 BRO Browse thru files
2 UPL Upload a new file
3 EXI Exit to Education Forum
4 HEL Help
5 XA  Change database

Key digit: 1        (BROWSE THROUGH FILES)
/AGE:               (PRESS <RETURN>)
/KEY:               (PRESS <RETURN>)

[75675,12]
ACH.BAS         13-Mar-84 9285          Accesses: 3

    Keywords: MODEL I MODEL III MODEL 4 MODEL 1 MODEL 3 TRS-80
BASIC ETS ACHIEVEMENT TEST

    This is a basic program which prints a summary of a high
school's students' ETS Achievement Test scores. It is written in
BASIC for the TRS-80 operating under LDOS 5.1.4.

(NORMALLY A PROMPT WOULD APPEAR AFTER EACH ENTRY TO ALLOW YOU TO
DOWNLOAD THE FILE.  IT HAS BEEN EDITED FROM THIS PRESENTATION.)


[75265,716]
VOICE.XEC       22-Oct-83 13265         Accesses: 10

    Keywords: VOICEPRINT DEAF SPEECH APPLEPROGRAM

    This public domain software lets a speech teacher with an
Apple and a tape recorder show voice or other sounds on the
screen. Download the file to an Apple and EXEC it. See also
VOICE.DOC if available.
```

For educators at the collegiate level, there is the Educational Research SIG(ED R&D), sponsored by the Mid-Western Educational Research Association. It is open to educators, psychologists, and anyone else interested in educational research. The System Operator (SYSOP) of this forum is Jean Pierce, PhD, President of the Mid-Western Educational Research Association and associate professor of educational psychology at Northern Illinois University. You can contact Jean at 76703,445.

The following is a list of the current "threads" or topics of discussion for the week of May 4, 1984. You may reach this forum and CompuServe's other educational offerings by typing GO HOM-70.

```
  592  Corvus network
  724  Artificial intelligence
  739  DRE
  757  SPSS/Prc
  791 & 824  The Principal Principle
  794  Osborne users
  798  Attribution scale
  856  Micros and Undergrad. Research Papers
  861  Merit pay
  865  Magnet schools
  913  High school district size
  974  Statistics on micros
  975  Reintegrating children into adult society
 1012  Apples with retarded/handicapped, high school
 1020  Diagnosing hyperkinesis
 1047  Teacher Evaluation
 1074  Micros & Inner city math and reading
 1085  Tests and verity
 1091  Precision teaching
```

In addition to CB and its many SIGs, CompuServe offers an interesting array of educational services that branch from page HOM-70. The remainder of this chapter is devoted to an eclectic examination of Grolier's Academic American Encyclopedia, "Multiple Choice", and the "College Press Service."

```
!GO HOM-70

CompuServe              Page HOM-70  (COMPUSERVE'S EDUCATION MENU)

EDUCATION

$ 1 Grolier's Academic American ($ = $5.00/HR SURCHARGE)
    Encyclopedia
  2 The College Board  (COLLEGE INFO, FINANCIAL ASSISTANCE)
  3 The Multiple Choice  (EDUCATIONAL GAMES, QUIZZES, TRIVIA)
  4 Edutech Project PILOT
  5 College Press Service  (WHAT'S HAPPENING IN HIGHER ED)
  6 Clarke School for the Deaf
  7 Handicapped Users Database
```

```
  8 Educators SIG      (REVIEWED EARLIER)
  9 Educational Research Forum (REVIEWED EARLIER)

(CHOOSING NUMBER 1 FROM THE ABOVE MENU, WE COME TO...)


Grolier                    Page AAE-1

   The Electronic Edition Of
  GROLIER'S ACADEMIC AMERICAN
         Encyclopedia
      Copyright (c) 1983
    Arete Publishing Company

  1 Electronic Encyclopedia
  2 AAE User's Guide
  3 Product Information
  4 Grolier Talk-Back

$ = $5.00/hour surcharge

  "This is the electronic edition of the widely acclaimed
Academic American Encyclopedia, a 21-volume general reference
work which is the first entirely new encyclopedia to be published
in more than a decade.  With more than 9 million words and
approximately 30,000 articles, the Academic American was designed
for easy use.  Most of the articles are 'short entry,' which
means that information is easier to find and extract.  For
example, there is a general article on 'ROCKETS AND MISSILES,'
but there are also a number of articles on specific types of
rockets such as 'MX MISSILE,' 'CRUISE MISSILE,' 'SATURN ROCKET,'
etc. This same approach is used throughout the encyclopedia."

Key (ENTER) to begin search...  (PRESS (RETURN))


Search term: TELECOMMUNICATION (SEARCHING "TELECOMMUNICATION")

Grolier              Page AAE-153274

telecommu- cations                (EXCERPT FROM ACTUAL ARTICLE)
-------------------------------
Telecommunications refers to long-distance communication (the
Greek tele means "far off"). At present, such communication is
carried out with the aid of electronic equipment such as the
RADIO, TELEGRAPH, TELEPHONE, and TELEVISION. In earlier times,
however, smoke signals, drums, light beacons, and various forms
of SEMAPHORE were used for the same purpose (see SIGNALING)...
```

```
Grolier                Page AAE-13

1 Begin a new search
2 HELP

!1                              (BEGINNING A NEW SEARCH)

Search term: WOMBAT             (SEARCHING "WOMBAT"


Grolier            Page AAE-168088

Wombat                          (EXCERPT FROM ACTUAL ARTICLE)
--------------------------------
[ wahm'-bat ]
The wombat is a burrowing, herbivorous, marsupial mammal in the
family Phascolomidae, including two living genera in Australia
and Tasmania: Vombatus, coarse haired with a naked nose; and
Lasiorhinus, with soft fur and a hairy muzzle. Wombats are
grayish brown, thick-bodied animals ranging from 70 to 120 cm
(27-47 in) and weighing up to 27 kg (60 lb). The ventral pouch
opens posteriorly. Wombats' large and numerous burrows are a
hazard to domestic range animals.

Last page. Key M for menu
--------------------------------------------------------------------------
```

Largely self-explanatory from its menu listing, here is "The Multiple Choice", a sizable database of educational games, personality inventories, IQ instruments, trivia quizzes, and analogy tests for a wide range of ages and educational backgrounds.

```
The Multiple Choice    Page TMC-1

 1* TMC I-Q Test
 2* So You Think You Know Me!!
 3* Trivia Unlimited
 4  Categorically Trivial
 5  TMC Intelligence Test
 6  Super Brain Challenge
 7  Personality Profile
 8* Witty Write-Ins
 9  TMC Analogies
10  TMC for Kids!       (* new or
11  Feedback to TMC      expanded)
```

Of particular interest to those associated with higher education there is the "College Press Service." Here is it's online self-description;

College Press Svc. Page CPS-1

****
COLLEGE PRESS SERVICE
****

Welcome to College Press Service's new on-line higher education news service.

THE WEEK OF: MAY 4, 1984

College Press Svc. Page CPS-210
About College Press Service

"It was 1962 when College Press Service began. Launched as a national college news service for collegiate publications, it has played an important part in keeping the nation's campuses informed of campus events and trends.

And now, as you've no doubt surmised, it is doing more. In addition to our national college news and graphics syndicate --which is now the largest in the land -- we're creating even more timely news and delivering it directly to you via computer.

These CPS electronic editions are aimed at higher education professionals and students who want a quick, easy look at the phenomena directly affecting them each day. In the process, you'll learn of what federal and state legislatures are doing for -- and to -- higher education.

We cover education court decisions, classroom trends, funding patterns, faculty and and administrative affairs, student goings-on. You name it, we report it. We cover it accurately, concisely and entertainingly for you. And we cover it conveniently for you. Our service is updated every Monday, so you'll have the most up-to-date news at your fingertips for the coming week.

For example, you can catch up on what's breaking each week (we'll soon be updating more frequently, moving eventually to daily changes), by scanning through Campus News Briefs. These 2-to-4 paragraph briefs look at campus phenomena as they happen. To get a deeper sense of the top campus news of the moment, you can view our Campus News In Depth.

Our "depth" stories typically are our most popular coverage. CPS is typically weeks and sometimes months ahead of other media

in uncovering the trends and emerging patterns of American higher education and campus life.

Then there's Administrators' NewsLine, a special weekly look at the week's most important developments in running the nation's colleges and universities.
You can get all of it on CompuServe at no additional charge to CompuServe subscribers. Soon you'll be able to get even more. In the very near future, for example, there'll be our National Campus Classifieds.

If you've got a message you want to get to the rest of the American campus community, a note to drop to the nation's students, a ride to offer or cadge, a house to rent, seminars to advertise, research to spread around, a job opening to tell about, a service to sell, you can post it on NCC.

Best yet, you can post it very, very cheaply. You'll be able to post it, too, either by getting in touch with CPS or by typing it in right on-line with CompuServe. And more is on the way: news columns drawn specifically for faculty members, business officers, and others."

CompuServe offers one other service that possesses broad educational. Electronic message transfer will likely supplant conventional postal services within the next few decades. Most major information utilities offer some form of electronic mail. CompuServe has "E-MAIL", and The Source has its version of the electronic post office called "SourceMail". In keeping with the goal of this paper, which is to present, in depth, one information utility, as a general model for them all, CompuServe's E-MAIL will be discussed at length. It should be noted, that while E-Mail and The Source's SourceMail are quite similar, many consider Sourcemail to be the more powerful system, as well as easier to use than E-Mail (Levy, 1984).

ELECTRONIC MAIL

There are those who delight in manually opening, reading, answering, and sending conventional mail, but this author is not among them. I have been known to let somebody's idea of important mail sit for an interminable length of time rather than face the ordeal of responding with pencil and paper. Even if I had managed to compose a letter correctly the first time around, there would never have been any stamps available, and the nearest post office has always seemed to have been at least ten miles away while a blinding snowstorm raged.

It is suggested here that many public school educators feel overly burdened by paperwork of one sort or another. The traditional school day is chronologically a lock-step affair. Aside from the usual period set aside for preparation, most educators are involved with their six to nine classes. More often than not, teachers must sandwich their correspondence into the precious few minutes between classes or at lunchtime. Compounding this problem substantially, public school teachers rarely have secretarial support. Considering that this situation is unlikely to change in the foreseeable future, steps must be taken to maximize the efficiency of the teacher. Recent innovations in word processing and electronic message transfer can serve to free the most valuable teaching aid in the classroom, namely, the teacher himself. Everyone seems to be preaching the benefits of computer assisted instruction or (CAI). Here is perfect example of how classroom computers can function in more of a CMI, or computer managed instruction mode. The

modem-equipped micro can significantly expand the time available to teachers so they can provide more time for interaction with their students.

Much of the time involved in conventional printed correspondence is devoted to the mechanics of writing. Finding appropriate stationery, writing instruments, stamps, envelopes, and a mail box all consume a disproportionate amount of time. Then one must also consider the time involved in typing ones correspondence. Properly inserting the paper, setting margins, centering titles, and correcting typos by any one of several unsatisfactory means, further cut into the educator's precious time. If those tasks don't use up enough time, there is always the turn-around time lag between the message's mailing and the delivery of its response. While it's true that everyone goes through this procedure, it is not correct to assume that this is the way it should be.

Several information utilities are now offering electronic mail transfer. While each has its own distinctive proprietary name, all are capable of perfect message composition and near instantaneous delivery without the sender even having to get out of his/her chair. If the party to which you are directing mail is also online at the moment, a typed reply could arrive at your computer within a matter of minutes. This capability of providing almost immediate feedback is, in itself, sufficient to warrant further exporation of its educational uses. Business and industry alike have been quick to see the potential savings of

time and money associated with electronic mail (Strehlo, 1983).

The varieties of electronic mail offered by the major information utilities are wonderful inventions, but they have one major limitation. They only deliver mail from one utility subscriber to another. In other words, I can send all the mail I want to my CompuServe friends around the U.S., but I can't send mail to my parents because they aren't subscribers to CompuServe. In time, this situation may rectify itself because people by the thousands subscribe to various utilities every month. On the other hand, there is an operational alternative.

Over the past two decades, the U.S. Postal Service has poured over $19 million in developing a nationwide electronic message transfer system (Lee, 1983). "E-COM" allows you too send electronic mail to any one of the Postal Service's "twenty-five SPO's" or Serving Post Offices. SPO's are located in major cities throughout the United States. A user can electronically transmit a letter that will be routed to the SPO that is closest to the letter's destination. At the SPO it is printed out, inserted into a special E-COM envelope and sent on its way through regular first class mail. Thus, E-COM is not fully electronic, but it is a harbinger of things to come. At this time, several information utilities are experimenting with tying their services to E-COM's so a CompuServe or Source user will be able to transmit mail to anyone, whether they are a subscriber to the utility or not.

Like the other offerings of CompuServe, E-Mail is menu-driven and reasonably foolproof. E-Mail can be accessed through the communications menu choice of Home Services, Business and Finance, or Personal Computing. Simply typing "GO EMAIL" at the "!" prompt will also deliver you to E-Mail. There is a third method of reaching E-Mail that can be used by those who intend to use often. By changing your "terminal parameters" online, you can be automatically sent to E-Mail every time you logon without typing anything at all.

You may pick from either of two system editors to compose messages. The first is called FILGE, for FILe Generator and Editor. FILGE works pretty much like a limited feature word processor. If you have any word processing experience, you will have little trouble transferring your training to FILGE. When using FILGE you are allowed to enter lines up to 140 characters in length, but its a good practice to press <RETURN> before you reach the right margin of your monitor. The second editor is called ICS for Integrated Command System. The most obvious overt difference between FILGE and ICS is that ICS automatically numbers the lines of your text which you refer to when editing. Those that have used a BASIC language editor such as PLE, (Program Line Editor) will see a great similarity between it and ICS, since both utilize line numbers. Because of its similarity to a word processing program, FILGE is the editor of choice for most people.

If you have sufficiently sophisticated terminal software, you may elect to use your own word processing program to compose your message offline and then go online and upload your file to E-Mail. This is obviously a useful feature since you would not then be paying a fee to CompuServe for composing a letter on their time. Writing a paragraph or two is economically acceptable, but few people would elect to type a 4 page letter while online at $6.00/hour, especially if their typing skills are not up to par.

E-Mail also allows the user to send a copy of his/her message to many subscribers by simply changing the address to which the same text is transmitted. Transmission speeds vary from nearly instantaneous to approximately 20 minutes. The variation is caused by the fact that CIS runs on multiple mainframes and scatters user's storage space among them. Thus, if the sender and the recipient's storage space are on different computers, there will be a short time lag while the message is shuttled from one mainframe to another. If the sender and recipient's storage area are within the same computer there will be immediate delivery of the message.

CompuServe also maintains a user directory which serves like an electronic address book. Being listed in the directory is optional, but it can be a useful tool in sending E-Mail for it lists users' names, ID numbers, city of residence, equipment type, and personal interests.

The following is a download of a message-composing session with CompuServe's E-Mail. To demonstrate how the system works, I composed a brief test message which I had mailed to my own "address", 72366,444. As you read through the transcript which is annotated in the usual fashion, you will note the message was composed with the FILGE editor. Transmission time was less than one minute.

```
!GO EMAIL              (GOING DIRECTLY TO E-MAIL MENU)

CompuServe               Page EMA-1

   Electronic Mail Main Menu

1  Read mail
2  Compose and send mail

Last menu page. Key digit
or M for previous menu.
!2                     (I WANT TO COMPOSE A LETTER)

CompuServe               Page EMA-4

CREATE a new message in your  (OPTIONS FOR CREATING/SENDING MAIL)
temporary workspace using:
  1 EDIT (FILGE)
  2 ICS
  3 File from disk space
EDIT message in workspace using:
  4 EDIT (FILGE)
  5 ICS

  6 SEND message from workspace
  7 Information on EDIT (FILGE)
  8 Information on ICS

Last menu page. Key digit
or M for previous menu.
!1          (CREATE A MESSAGE USING THE FILGE EDITOR)

New file Z99EMA.TMP created - ready (CIS HAS CREATED A TEMPORARY
                                     FILE SPACE FOR ME)
            (COMPOSING LETTER)
Dear Doug,
     This is a little test of CompuServe's E-Mail.  I'm going to
type a short letter and then mail it electronically to User ID
72366,444, which is myself!  I'll stay online for a few minutes
to see how long it takes for this letter to reach me.
Doug
```

```
/E:         ('/EX'=EXIT: TELLS SYSTEM THAT I'M DONE

CompuServe              Page EMA-4  (NOW I WANT TO SEND MY LETTER)

CREATE a new message in your
temporary workspace using:
  1 EDIT (FILGE)
  2 ICS
  3 File from disk space
EDIT message in workspace using:
  4 EDIT (FILGE)
  5 ICS

  6 SEND message from workspace
  7 Information on EDIT (FILGE)
  8 Information on ICS

Last menu page. Key digit
or M for previous menu.
!6          (SEND MY MESSAGE FROM MY WORKSPACE)

CompuServe              Page EMA-8

Key (ENTER) to leave; ? for help

    (I PRESSED (RETURN))

Send to User ID  (CIS WANTS TO KNOW WHO TO SEND MESSAGE TO)
:72366,444      (MY ADDRESS OR ID)
Subject (32 characters max)  (CIS WANTS A TITLE/HEADER FOR
LETTER)
:E-Mail Test Letter
Your name (32 characters max)
:Doug Schooler
Is this correct? (Y or N):Y

Message awaiting delivery.  (CIS HAS SENT MY LETTER ON IT'S WAY)

**************************************************************************


(AT THIS POINT I LOGGED OFF OF COMPUSERVE ENTIRELY AND THEN
RE-ESTABLISHED CONNECTION APPROXIMATELY ONE MINUTE LATER....)

**************************************************************************


User ID: 72366,444   (NORMAL LOGON PROCEDURE)
Password:
CompuServe Information Service
19:09 EDT  Saturday  05-May-84

You have EMAIL waiting.  (I AM AUTOMATICALLY NOTIFIED AT LOGON
                          IF I HAVE ANY MAIL)
```

```
CompuServe              Page EMA-1 (I'M DELIVERED HERE
                                    AUTOMATICALLY)

   Electronic Mail Main Menu

1  Read mail
2  Compose and send mail

Last menu page. Key digit
or M for previous menu.

!1      (I WANT TO READ MY MAIL)


CompuServe              Page EMA-3

   1 Doug Schooler/E-Mail Test Letter

Last menu page. Key digit
or M for previous menu.

!1      (READ LETTER NUMBER 1)

CompuServe              Page EMA-5
5-May-84 19:03 Fr [72366,444]
Dear Doug,
     This is a little test of CompuServe's E-Mail.  I'm going to
type a short letter and then mail it electronically to User ID
72366,444, which is myself! I'll stay online for a few minutes to
see how long it takes for this letter to reach me.
Sincerely,
Doug


Key (ENTER) to continue   (SIGNALS THE END OF THE LETTER)

!                         (I PRESSED (RETURN))


CompuServe          Page EMA-5.  (THIS MENU ASKS FOR DISPOSITION
                                  OF THE LETTER ABOVE)

1  File this message, then  (FILE IN MY COMPUSERVE MEMORY AREA)
   delete from mailbox
2  Delete from mailbox      (DELETE THE MESSAGE ENTIRELY)
3  Display the message again

!
Key (ENTER) to continue
!
```

CompuServe Page EMA-5.

1 File this message, then
delete from mailbox
2 Delete from mailbox
3 Display the message again

Enter your selection number,
or H for more information.

!2 (DELETE MESSAGE ENTIRELY)

CompuServe Page EMA-10

Message deleted (COMPUSERVE HAS REMOVED LETTER FROM MY ELECTRONIC "MAILBOX")

(LOGOFF)

ALL THE NEWS THAT'S FIT TO PRINT

Last in our survey of CompuServe's educationally oriented offerings is its ability to link you to a number of important sources of news and weather information. There are online electronic versions of several popular magazines, ("Popular Science", "Popular Electronics", and "Better Homes and Gardens") as well as newspapers such as "The Washington Post" and "The St. Louis Post-Dispatch". Probably most utilitarian, The Associated Press regularly transmits stories from its news database to CIS. Unlike many of the other databases available on CompuServe where currency is not measured in minutes, The AP Videotex Wire provides immediate information concerning state, national, and international news virtually as it happens. CIS also delivers the AP Washington Wire which carries all of their stories originating from Washington, D.C.. Using the AP wire, it is possible for a current events or political science teacher to deliver news on major events to their students well before they

hear or read about it via the traditional media of television, radio, or newspapers. CIS also delivers information on all major professional and college sports. Thus, one may get the latest scores and game results within a few minutes of the game's conclusion.

For those interested in business and finance, there are numerous services available. Agricultural commodity and metals prices are carried by the Commodities News Service.

Are your students studying Canada or perhaps foreign currency? The Canadian Press (a wire service used by Canadian newspapers) has online its Business Information Wire.

From its offices in San Francisco, the Federal Reserve Board transmits stories related to the money supply and the actions of the Board daily to CompuServe (Sturtz and Williams, 1983).

CIS also carries The Business Wire, a news service composed of the latest press releases from corporations all over the U.S. and transmitted on a daily basis.

Of considerable value to the investor is "MicroQuote" which gives historical and current information of close to 45,000 stocks, bonds, and options. This is a premium service though, meaning that you pay over and above CIS's regular online charge (Glossbrenner, 1983).

For the general science teacher there is the AP weather service plus NOAA's (National Oceanic and Atmospheric Administration) Weather Wire. Using these menu driven services you can get weather information on virtually any locale. You can request current weather by state, immediate forecasts, long-range forecasts, marine weather, aviation weather reports, probability of precipitation, and even weather in foreign countries.

In addition to providing access to major national news wires, CompuServe, Delphi, and The Source, all provide a hodge-podge of newsletters, advice columns, health guides, company forecasts, computer manufacturer's newsletters, travel assistance, government reports, entertainment reviews, and other miscellanea.

News services are provided by virtually all the major information utilities. They differ in which wire service they access (UPI or AP), the format used to retrieve information, and the ability to search for information by keyword. Some utilities have more powerful search techniques than others, so it is a good idea to investigate them thoroughly if access to current events is one of your major reasons for subscribing.

Below is a brief tour through a few of the news sources that we have mentioned above:

```
CompuServe              Page HOM-10    (NEWS MENU)

    NEWS/WEATHER/SPORTS

News Services
 1 The Washington Post ($)  ($=PREMIUM CHARGE FOR USE)
 2 St. Louis Post-Dispatch
 3 AP Videotex Wire

4 NOAA Weather Wire
5 Official PGA Tour Guide   (NEWS ON PROFESSIONAL GOLF)
6 Hollywood Hotline ($)     (ELECTRONIC "RONA BARRETT")
7 American Ski Association
$ Indicates surcharged service

Last menu page. Key digit
or M for previous menu.
!3                          (I'VE SELECTED AP VIDEOTEX WIRE)

AP Videotex             Page APV-1  (AP MENU OF SERVICES)

Associated Press News Highlights

1 Latest News-    7 Entertainment
  Update Hourly
2 Weather         8 Business News
3 National        9 Wall Street
4 Washington     10 Dow Jones Avg
5 World          11 Feature News
6 Political      12 History
Key (ENTER) for Sports

!1          (HOURLY UPDATED LATEST NEWS)

AP Videotex         Page APV-2154

5 24th AP Newsbrief   (AP NUMBERS IT'S HOURLY UPDATES)
6 23rd AP Newsbrief
7 21st AP Newsbrief
8 20th AP Newsbrief
9 19th AP Newsbrief
0 18th AP Newsbrief

Input a number or key
(ENTER) for more choices
!5      (I'VE SELECTED THE 24th AP NEWSBRIEF)

AP Videotex         Page APV-2441

AP 05/05 23:43 EDT V0048  (4 STORIES FOLLOW)
24th AP Newsbrief
```

Here is the latest news from The Associated Press:

The Rev. Jesse Jackson has picked up his second primary victory in less than a week. Jackson's late campaigning in Louisiana paid off handsomely with a big victory in the state's court-ordered primary Saturday.

Walter Mondale is claiming a win in Texas where picking delegates is a bit more complicated. Texas Democrats Saturday first had to vote in a primary election for local offices and then attend caucuses to express their preference for president.

Reagan administration officials fear more than the presidency is at stake in Sunday's presidential elections in El Salvador. Moderate Jose Napoleon Duarte is expected to win, which administration officials fear could lead to a rise in right-wing death squad violence.

Pope John Paul's Sunday in South Korea was scary: A man described by Seoul police as mentally unstable lunged from a crowd, firing what looked like a pistol at the pope's bullet-proof car. But the gun was toy and the pontiff was unhurt.

Last page. Key M for menu

AP Videotex Page APV-1 (BACK TO THE NEWS MENU)

Associated Press News Highlights

1 Latest News- Update Hourly
2 Weather
3 National
4 Washington
5 World
6 Political
7 Entertainment
8 Business News
9 Wall Street
10 Dow Jones Avg
11 Feature News
12 History
Key (ENTER) for Sports

!2 (I'VE SELECTED AP WEATHER SERVICE)

AP Videotex Page APV-1663

8 The Nation's Weather
9 Weather From Around The World
0 Weather Around The U.S.A.

Input a number or key
(ENTER) for more choices
!0 (I WANT A LOOK AT WEATHER FROM AROUND THE U.S.)

AP Videotex Page APV-1653

AP 05/05 10:17 EDT V0917 Weather Around The U.S.A. By The Associated Press

Temperatures on left indicate today's forecast temperatures and outlook. Tomorrow's temperatures and outlook are in the right columns.

	Today			Tomorrow		
	Hi	Lo	Otk	Hi	Lo	Otk
Albany	57	40	cd	70	43	cl
Albuquerque	82	44	cl	73	41	cd
Amarillo	78	49	cd	72	45	cd
Anchorage	50	34	rn	53	37	cd
Asheville	74	55	cl	79	58	cd
Atlanta	81	63	cd	85	63	cd
AtlanticCty	68	53	cd	63	55	cd
Austin	95	74	cd	93	73	cd
Baltimore	70	54	cd	66	58	rn
Billings	53	35	rn	50	32	sn
Birmingham	84	67	cd	87	66	cd
Bismarck	58	36	cd	54	36	cd

(I INTERRUPTED OUTPUT AND MOVED BACK TO AP NEWS MENU)

CompuServe Page HOM-10

NEWS/WEATHER/SPORTS

News Services
1 The Washington Post ($)
2 St. Louis Post-Dispatch
3 AP Videotex Wire

4 NOAA Weather Wire
5 Official PGA Tour Guide
6 Hollywood Hotline ($)
7 American Ski Association
$ Indicates surcharged service

Last menu page. Key digit
or M for previous menu.
!4 (I'VE SELECTED THE NOAA WEATHER WIRE)

CompuServe Page WEA-1

WEATHER Page WX-3 (NOAA MAIN MENU)
1 State Forecasts
2 Extended Forecasts
3 Forecast Explanation
4 Probability of Precip.
5 Marine Forecasts
6 Sports Forecasts
8 Weather Warnings
12 Aviation Weather Menu

```
Selection: 1   (I WANT A STATE FORECAST)

STATE FCSTS
Enter identifiers
or (H) for HELP

ID: OH  (NOAA WANTS TO KNOW WHICH STATE?  I TYPED "OH" FOR OHIO)

CLE 052005

 STATE FORECAST FOR OHIO
 NATIONAL WEATHER SERVICE CLEVELAND OH
 405PM EDT SAT MAY 5 1984

 MOSTLY CLOUDY TONIGHT. SHOWERS AND THUNDERSTORMS SPREADING INTO
THE SOUTHWEST CORNER OF THE STATE. LOWS MID 40S NORTH TO MID 50S
SOUTH.  SHOWERS AND THUNDERSTORMS SUNDAY AND SUNDAY NIGHT. HIGHS
SUNDAY 65 TO 75. LOWS SUNDAY NIGHT 55 TO 65. PARTLY CLOUDY WITH
BRIEF THUNDERSTORMS MONDAY. HIGH IN THE 70S.

(LOGOFF)
```

This concludes our tour through the CompuServe Information Service. As previously stated, it is this author's goal to highlight only those aspects of an information utility that have broad educational impact. The reader is urged to go back and re-examine the CIS index to see if there aren't a significant number of services that might be useful in your own particular educational setting. Having CompuServe's vast collection of databases online can not only decrease your classroom preparation time by improving your efficiency, but can also give you the capability of bringing certain types of information into the class that otherwise might not be available.

In the next chapter we will turn our attention to The Source, an enormous information utility located in McLean, Virginia. Probably, CompuServe and The Source are the two largest and most widely known general information utilities. While many people subscribe to both, there is a great deal of

redundancy between the two systems. Both have electronic mail, teleconferencing, games, business reports, news wires, and so on. The biggest difference between the two lies not in their offerings, but rather their style of delivery.

As you have seen, CompuServe is a menu-oriented utility. This is wonderful for the beginner or the infrequent user, but slow, cumbersome, and expensive for the veteran user. CompuServe partially addresses the problem by giving you the option of using "GO" codes to get directly to your destination. Even using these shortcuts, one generally still has to face a few unavoidable menus once you arrive. In addition, "GO" codes can be difficult for the new user because they require the memorization of screen page numbers that aren't very informative in themselves.

In contrast, The Source is oriented towards "command" navigation. It still has lots of menus for those who need them, but one can easily get to what is called "command level" by typing "Q" or "QUIT" at any prompt. This will give you the prompt, "->", and the system will sit there waiting for you to tell it directly what to do next. For example, if you wish to check your electronic mailbox, you needn't endure several menus to get there. All you need to do is type "MAILCK" at a "->" prompt. This will deliver you directly to your mailbox, bypassing all menus in between. If you get lost, you can type "HELP" at any point in the system and be given quick and thorough assistance. If you want help with a specific area such as electonic mail, you can type "HELP MAIL OVERVIEW". If you wanted

to proceed directly to The Source's version of teleconferencing, you would simply type "PARTI" (for "PARTIcipate"). It is the utilization of direct commands coupled with an abundance of help screens that has contributed much to the popularity of The Source.

Within this paper, CompuServe is acting as a model for all. This does not mean that it is superior to all others. It would simply be excessively redundant and beyond the scope of this paper to examine The Source's answer to CompuServe's CB, E-Mail, SIG's, and so forth. We will examine the architectural structure of The Source, it's rates, hours, and methods of access. Once again, downloads of actual online sessions are extensively used to help the reader get a "feel" for the similarities and differences between the two utilities. Specific programs on The Source are discussed only when they possess broad educational appeal and are clearly different from their counterparts on CompuServe. Also, in some instances, parallels will be drawn in cases where The Source offers a particularly refined version of a similar service offered by CompuServe. This paper is not meant to be a review of the services available, but rather to introduce the reader to the great educational potential inherent in all online utilities. With that in mind, it's on to The Source!

Logging onto The Source is just as easy as logging onto CompuServe. The Source may be reached by a local call (if you're in the McLean, Virginia area), by Telenet, Uninet, DataPac (in Canada), or a WATS line for a $.25/minute surcharge. You may have been expecting to see Tymnet in the preceding list. The Source dropped its contract with Tymnet on April 1, 1984 and is strongly promoting its own fledgling network, Sourcenet, now available only in Washington, D.C., New York City, Chicago, and Pleasantville/White Plains, New York. If you are a bit surprised to see Pleasantville, New York included on the same list as the metropolitan giants just mentioned, you shouldn't be. Pleasantville is the home of that moderately successful publication, "Reader's Digest", which just happens to have owned The Source, since the autumn of 1980. This ownership is perhaps quite fitting when one realizes that "Reader's Digest" is probably the world's largest repackager and marketer of general information.

The Source is a huge, sprawling complex of services offering well over 1200 programs and features (Glossbrenner, 1983). It closely resembles CompuServe in it's offerings. As a subjective opinion, there are some areas, such as CB, in which CompuServe is unparalleled. On the other hand, many people give the award for best electronic mail to The Source's SourceMail, over Compuserve's E-Mail. It's easy to draw rough comparisons between The Source and CompuServe as the chart below indicates:

SERVICE	SOURCE	COMPUSERVE
MAIL	SOURCEMAIL	E-MAIL
REAL-TIME COMMUNICATION	CHAT	CB
ONLINE ACCESS TO UTILITY	SUGBOX	FEEDBACK
TEXT EDITING	THE EDITOR	FILGE OR ICS
ADVICE COLUMNIST	DEAR LORE	AUNT NETTIE
NEWS WIRES	UPI	AP
FINANCIAL NEWS	UNISTOX	AP FINANCIAL WIRE
BULLETIN BOARDS	POST	SIGS-BULLET
BUYING SERVICE	COMP-U-STORE	COMP-U-STORE
SERVICES INDEX	LIBALL	INDEX

Figure 3. Comparison of The Source with CompuServe.

Despite their redundancy, it is probably worthwhile to subscribe to both services, for each one has its distinct pluses and minuses. Despite their completely different formats (command vs. menu), it is a fairly simple matter to master both. If you're like most users, you'll probably come to lean more towards one than the other, but having both available can be very useful. Making more financially acceptable the idea of dual membership is the fact that unlike The Source, Compuserve has no monthly minimum charge, so once you've subscribed, you need not spend a cent on the system if you don't want to.

IMPORTANT SOURCE TELEPHONE NUMBERS

Customer Support:

Toll-Free: 1-800-336-3330
Direct: 1-703-821-8888
In Virginia: 1-703-734-7540

Customer support is available from 8AM to 1AM EST, seven days per week.

For Those Interested in Subscribing:

Toll-Free: 1-800-336-3366
Direct: 1-703-821-6666

Source Telecomputing Corp. Headquarters: 1-703-734-7500

Communication via SourceMail at ID# TCA088 (Current Users)
Communication via SourceMail at ID# TCA068 (Potential Users)

SOURCENET Access:

Chicago: 1-312-856-2112 (300 or 1200 Baud)
New York: 1-212-661-2510 (300 or 1200 Baud)
Pleasantville/White Plains N.Y.: 1-914-238-9299 (300/1200)
Washington D.C. area: 1-202-448-9191 (300 Baud)
1-202-448-9440 (1200 Baud)

TELENET Access: Consult the appendix for a Telenet directory.

Note: If you experience difficulty logging onto The Source via Telenet, you may call the following:

1-800-336-0437 (Continental U.S. outside Virginia)
1-800-572-0408 (Virginia)
1-703-422-2200 (Outside of the continental U.S.)

If it is possible, you are advised by The Source to call from a separate phone so you can maintain your connection to Telenet.

Note: SOURCENET and WATS line access is exactly the same as the Telenet access method described below, except you will not see the Telenet prompt, "TERMINAL=".

UNINET Access Problems: Call Uninet Customer Service at:
1-800-821-5340 (Cont. U.S.)
1-703-821-8136 (Virginia)

Uninet also advises using a second phone to call them so you can maintain your connection with them.

Uninet access is slightly different from Sourcenet and Telenet. After you dial the Uninet number and hear the carrier tone, you will see the prompt, ">L?". For most systems you can respond, "S10" and press <RETURN>. You will then receive the message that you are connected to The Source and can then enter your ID and password in the same fashion as per Telenet and Sourcenet.

WATS Line Access:
1-800-368-3343 (Continental U.S.)
1-800-572-3517 (Virginia)
($.25 per minute surcharge in addition The Source time chg.)

Foreign Access:
The Source can be accessed through Telenet from 46 countries using either 300 or 1200 baud transmission. Contact Telenet for rates and sign-on instructions at 1-703-442-1000.

CompuServe isn't the only friendly utility in town. The Source will also let you take a tour through a selected subset of its features at absolutely no cost. By entering your ID and password as "ID STCDMO DEALER", you will be allowed to spend fifteen minutes moving in an unstructured fashion through whatever happens to catch your interest. As with CompuServe's dealer demonstration, you will not have access to the entire service, but you should be able to experience more than enough to get a feeling for the structure of The Source and to judge whether you might wish to subscribe.

The author has included the brief download of the initial parts of the dealer demo program because it does not look exactly like what you would see if you were logging onto The Source as a

subscriber. Immediately after examining the dealer demo logon, you will see a detailed presentation of how you would logon via Telenet and what you could expect to see if you were a regular Source subscriber.

***** THE SOURCE'S FREE 15 MINUTE DEALER DEMONSTRATION *****

(THE MEANING OF THE LOGON PROCEDURE THROUGH TELENET WILL BE EXPLAINED SHORTLY)

```
TELENET
614 17B

TERMINAL=D1

@C 30124

301 24 CONNECTED
Connected to THE SOURCE
> (RETURN)
Please Type 'ID' Then Your Number and Password.

> ID STCDMO DEALER  (HERE'S WHERE YOU ENTER "ID STCDMO DEALER")

STCDMO (user 33) logged in Sunday, 15 Jan 84 19:34:12.

Welcome, you are connected to THE SOURCE.
Last login Sunday, 15 Jan 84 19:32:52.
(1 other user under this id.)
(C) COPYRIGHT SOURCE TELECOMPUTING CORPORATION 1983.
```

Welcome to a "LIVE" interactive demonstration of The Source! The Source, AMERICA'S INFORMATION UTILITY, delivers many information and communication services to your micro-computer, greatly expanding the capability and capacity of your hardware.

Never has so much been so accessible for so little!

The Source uses PRIME computers located in McLean, Virginia. You can connect to THE SOURCE with any microcomputer, communicating word processor or data terminal by dialing a local number from nearly 500 U.S. cities as well as many locations around the world.

(AFTER THE SHORT INTRODUCTORY REMARKS ABOVE, YOU ARE DELIVERED TO THE SOURCE'S "DEMONSTRATION MENU". THIS IS NOT SEEN BY REGULAR SUBSCRIBERS.)

****
THE SOURCE

DEMONSTRATION MENU
****

MAIN MENU

1 NEWS AND REFERENCE RESOURCES
2 BUSINESS/FINANCIAL MARKETS
3 CATALOGUE SHOPPING
4 HOME AND LEISURE
5 MAIL AND COMMUNICATIONS
6 TRAVEL SERVICES
7 THE SOURCE RATES AND FEES
8 SIGN-OFF

(AT THIS POINT YOU HAVE 15 MINUTES TO EXPLORE ANY OF THE OPTIONS ABOVE. I IMMEDIATELY ELECTED CHOICE 8 AND LOGGED OFF)

STCDMO (user 60) logged out Sunday, 15 Jan 84 19:35:00.
Time used: 00h 03m connect, 00m 04s CPU, 00m 01s I/O.

(THE SOURCE RESPONDS BY TELLING ME THE TIME AND DATE OF MY LOG OFF, MY CONNECT TIME, HOW MUCH ACTUAL SOURCE COMPUTER OR "CPU" TIME I USED, AS WELL AS HOW MUCH TIME THE THEIR COMPUTERS SPENT SHUFFLING INFORMATION IN OR OUT AS INDICATED BY THE NOTATION "I/O" FOR INPUT/OUTPUT.)

(NOW LET'S DO THE SAME PROCESS AGAIN, ONLY THIS TIME AS A REGULAR SUBSCRIBER ACCESSING THROUGH TELENET. THE PROCEDURE DESCRIBED BELOW IS VIRTUALLY IDENTICAL TO THAT WHICH WOULD BE USED IF WE WERE SIGNING ON VIA WATS LINE OR SOURCENET, WITH THE EXCEPTION THAT WE WOULD NOT SEE TELENET'S PROMPT, "TERMINAL=".)

EXAMPLE: LOGGING ONTO THE SOURCE VIA TELENET

(DIAL THE NEAREST TELENET NUMBER: CONSULT THE APPENDIX)

AFTER YOU HEAR THE CARRIER TONE PRESS (RETURN) TWICE)

(TELENET WILL REPOND JUST AS YOU SEE BELOW, ALTHOUGH THE NUMBER "614 17B" WILL PROBABLY BE DIFFERENT SINCE IT IS THE IDENTIFIER OF THE NODE THAT YOUR PARTICULAR CALL IS BEING ROUTED THROUGH.)

TELENET
614 17B

(NEXT, YOU'LL SEE THE PROMPT "TELENET=". TELENET WANTS TO KNOW YOUR TERMINAL TYPE SO THAT IT CAN AUTOMATICALLY SET UP CERTAIN COMMUNICATION PARAMETERS FOR YOU. VIRTUALLY ALL COMMON MICROCOMPUTERS USE THE TERMINAL CODE "D1".)

TERMINAL=D1 (FOR NEARLY ALL MICRO'S ENTER D1)

(THEN YOU WILL SEE THE PROMPT "@". TO THIS, RESPOND "C 30124".)

@C 30124 (THE SPACE AFTER THE "C" IS NECESSARY.)

301 24 CONNECTED (YOU'RE KNOCKING ON THE SOURCE'S FRONT DOOR.)
Connected to THE SOURCE

(NOW THE SOURCE PRESENTS YOU WITH THE PROMPT ">". TYPE IN "ID", PRESS THE SPACE BAR ONCE, AND THEN TYPE IN YOUR SIX-LETTER/DIGIT ID AND PRESS (RETURN) ONCE.)

> ID AAB939
Connected to THE SOURCE

(YOU'RE ALMOST IN. NOW ENTER YOUR SECRET PASSWORD AND PRESS (RETURN). REMEMBER, NOTHING WILL SHOW ON THE SCREEN AS YOU'RE TYPING YOUR PASSWORD. THIS IS FOR YOUR OWN PROTECTION.)

> Password? (ENTER YOUR PASSWORD AND THEN PRESS (RETURN))

(AFTER VERIFYING YOUR ID AND PASSWORD, YOU ARE ADMITTED TO THE SOURCE!)

AAB939 (user 36) logged in Sunday, 06 May 84 00:01:28.
Welcome, you are connected to THE SOURCE.
Last login Sunday, 25 Mar 84 21:07:28.

(C) COPYRIGHT SOURCE TELECOMPUTING CORPORATION 1984.
Find Someone Special on THE SOURCE? (GENERAL ANNOUNCEMENTS)
Or Learn the Latest About Micros?

For Details on These and Other New
Products on THE SOURCE, Type NEW.

The Latest Election Poll is in BULLETIN.

WELCOME TO THE SOURCE (THE ENTRY MENU)

1 USING THE SOURCE (GENERAL INSTRUCTIONS)
2 TODAY (HODGE-PODGE OF TV REVIEWS, HOROSCOPES, ETC.)
3 BUSINESS UPDATE
4 THE SOURCE MAIN MENU (LIKE COMPUSERVE'S PAGE CIS-1)
5 WHAT'S NEW (CURRENT EVENTS ON THE SOURCE)
6 COMMAND LEVEL (WILL GIVE YOU A "->" PROMPT)

Enter item number or HELP 1 (I'M ASKING FOR GENERAL INSTRUCTIONS)

(HERE IS THE SOURCE'S HELPFUL REPLY)

The Source welcomes you to its worldwide network of electronic communication and information services. With virtually any microcomputer, terminal or communication word

processor, plus a telephone and a modem, the vast array of information and communication services offered by The Source becomes available to you.

You can keep on top of unfolding news events, send mail electronically, check airline schedules, arrange a trip, look in on the stock market and analyze trends, chat electronically with others in the computer community, play electronic games or even go shopping.

A subsidiary of Reader's Digest Association, Inc. in association with Control Data Corp., The Source seeks to offer you the highest quality information and services available. It is our goal also to make all services easy to use, whether this involves retrieval of information or creating your own computer programs.

The Source operates through computer telephone networks that link you to the mainframe computing power and storage capacity of The Source's Prime Computers located at company headquarters in Mclean, Va.

The brief instructions which follow will help acquaint you with methods foraccessing information and programs on The Source. Be sure to check your User's Manual for more details.

THE SOURCE RATES AND FEES

as of

MAY 1, 1984

****
SUBSCRIPTION FEE
****

You can purchase a SOURCEPAK from your dealer for a $100* one-time fee (suggested retail price). This covers your instant sign-on, ID and password, USER'S MANUAL, COMMAND GUIDE and your subscription to SOURCEWORLD newsletter!

Minumum monthly charges include:

$1 For account maintenance (2 storage records or about 2048 characters)

$9 Usage. If you use less than $9 in connect time, you will be billed $9.

$.25 Minimum connect fee each time you access THE SOURCE.

CONNECT TIME RATES FOR THE SOURCE AS OF 5/1/84 (300 BAUD)

	MONDAY-FRIDAY 7AM-6PM	EVERYDAY 6PM-7AM
CONTINENTAL U.S.	$20.75/HR.	$7.75/HR.
ALASKA	$20.75/HR.	$25.00/HR.
HAWAII	$20.75/HR.	$12/75/HR.
CANADA	$20.75/HR.	$10.50/HR.

Note: There is a surcharge imposed for accessing The Source at 1200 Baud. From Monday through Friday, 7AM to 6PM, the surcharge is $5.00/hr. At all other times the surcharge is $3.00/hr. All charges are automatically billed to your Visa, MasterCard, or American Express credit card.

****
COMPATIBILITY REQUIREMENTS
****

You can use The Source with most standard data terminals, word processors and personal computers. Your hardware system must be set up to meet the following technical requirements:

* 300 or 1200 Baud
* Full Duplex
* No Parity
* 8 Bit ASCII Code
* 1 Stop Bit

(Word Length and Stop Bits may vary due to hardware and software requirements.)

LOCATING INFORMATION ON THE SOURCE

There are two methods available for accessing information and programs from The Source. One method uses The Source Menu as a guide, and is recommended for new users. The second method provides direct access to services via commands entered from Command Level (->).

THE SOURCE MENU

You can access The Source's Main Menu from the Entry Screen, which appears after you sign on, or by entering MENU at Command Level. This Main Menu divides THE SOURCE into broad categories, such as NEWS AND REFERENCE RESOURCES or BUSINESS/ FINANCIAL MARKETS. From here you can select a category of interest by entering the corresponding number at the prompt: Enter Item Number or HELP". Continue to select from successive menus until you retrieve the desired information or program.

The following navigational commands, entered at a menu prompt, will enable you to quickly maneuver through The Source Menu:

M	Returns you to the first page of the Main Menu.
P	Returns you to the first page of the previous Menu.
QUIT	Always returns you to Command Level.

Once you are familiar with the number route to any SOURCE program, you can string commands by sequentially listing the desired item numbers, after typing Menu at the >. For example, for UPI Business News:

CHOICE #	DESTINATION
->MENU 2	Brings you to the BUSINESS/FINANCIAL MARKETS Menu.
->MENU 23	Brings you to the NEWS AND COMMENTARY Menu.
->MENU 231	Takes you directly into the UPI Business News service.

In the above example then, the number "231" is a series of consecutive menu choices. The "2" is choice #2 from the main menu. The "3" is the third selection of the menu that choice #2 took you to. Lastly, number "1" takes you to the first option presented by menu #3. It's a bit like CompuServe's "GO" page number commands. Alternatively, think of it as giving directions; go south 2 blocks, west 3 blocks, and finally turn south again for another 1 block.

You can also string commands without the word "MENU" if you're already at The Source Menu. For example, from the first page of The Source Menu:

431	Brings you directly to domestic flight schedules.
432	Brings you directly to international flight schedules.

You also can string using the M command. From anywhere in the Menu, M 61 will take you to The SOURCE electronic mail service. "M" takes you to the main menu. So M61 and Menu 61 are synonomous.

COMMAND LEVEL ACCESS

There are hundreds of separate programs and databases on The Source. You can access any of these from Command Level by entering the program name, or a System Command followed by the program name, at the ->.

Here are a few examples of programs accessed by entering their name at the ->:

-> STOCKVUE	Retrieves Media General's Stock Analysis service.
-> USNEWS	Retrieves the weekly U.S. Washington News Letter.
-> CSTORE	Retrieves the Comp-U-Store shopping service.

Sometimes a System Command should precede the program name, for example:

HELP: Followed by a name retrieves background information on a database, service, or program. HELP STOCKCHECK retrieves program instructions and a demonstration. NOTE: For a complete list of HELP files, enter HELP LIST at the ->.

PLAY: Must be entered before the name of a game to begin play. PLAY STARTREK lets you play the game "STARTREK".

There are two commands found in almost any program:

QUIT: Entered at most prompts will take you to Command Level.

HELP: Entered at a prompt will give you instructions on that program.

STC CUSTOMER SUPPORT VIA MAILBOX.....TCA088

SOURCE TOLLFREE NUMBER.....800-336-3330

FOR LATEST ANNOUNCEMENTS FROM THE SOURCE, TYPE.....NEW

FOR LIST OF SYSTEM COMMANDS, TYPE.....HELP SYSCOM

FOR MAIN INDEX TO SOURCE CONTENTS, TYPE.....HELP LIBALL

TO ENTER SOURCE MAIN MENU, TYPE.....MENU

FOR INDEX TO BUSINESS/FINANCIAL SERVICES, TYPE.....HELP BIZDEX

FOR INDEX TO ONLINE INFORMATION ON PROGRAMMING OR THE EDITOR, TYPE.....HELP ADAPPR

TO GET ALL HELP FILES AVAILABLE, TYPE.....HELP LIST

These utilitarian and navigational commands are entered at Command Level; to use the services on The Source, type HELP SERVICES at Command Level.

A *)sub-directory-name	Attaches you to a sub-directory you've created.
AB filename -CR	Create a file of abbreviated commands.
ALC	Moves you up to your log-on User File Directory from any sub-directory.
ASF	Attaches you to your Shared-File area.
BASICV	Program in BASIC language.
CHAT i.d.	Real-time conversation with another member of The Source.
CHAT -OFF	Refuse CHAT calls.
CHAT -ON	Accept CHAT calls.
CIPHER	Encrypt a text file.
CO filename	Execute a command file.
COMO filename	Preserve screen display in a file.
COMO -E	End a COMO session.
COPY filename-location	Move files between directories and sub-directories.
CPW old-password	Change your password.
CR sub-directory-name	Create a sub-directory in your User File Directory.
CRTLIST filename	Display a file, pausing every 24 lines.
CTRL-P	Break from a program.
CTRL-S	Stop scrolling screen display.
CTRL-Q	Re-start scrolling screen display.
DA sub-directory-name	Attach down to a sub-directory.
DATE	Display time and date.
DEL filename	Delete a file.
DELETE sub-directory-name	Deletes an entire sub-directory.
ED or ED filename	Use the Text Editor.
ENTER filename	Type in a file.
F	Displays your filenames and amount of record storage they occupy, with date they were last modified.
FILETRAN	Upload a text file from your micro to your UFD on The Source.
FTN source-filename	Program in the Fortran language.
GETSHR	Copy Shared-File to Shared-File area.
HELP program-name	Information on how program operates.
ID	Followed by account number & password, signs you on to The Source.
INFOX	The INFO-X Business Management program.
L	Lists titles of files in your User File Directory.
LOAD program-name	Loads a Fortran program.
MAIL	Use the SourceMail system.
MAILCK	Lists number of letters in mailbox.
NAME	Assign a personal name to your account.
ONLINE	Lists ID numbers of members currently using The Source.
OFF	Disconnect from The Source.
PASCAL source-filename	Program in the Pascal language.

PLAY game-name	Play a particular game.
POST	Use the bulletin-board system.
PUTSHR	Move a file into your Shared File area.
QUIT	Exit a program and return to Command Level.
RCV	Upload a text file from micro to your UFD on The Source.
RDY -RB new-prompt	Change the Command Level symbol (->) on your account.
RUN program-name	Run a loaded Fortran program.
TIME	Display time used during current session.
TY filename	Display a text file.
TYPSHR	Display a Shared File of other member.
WHO	Indicates ownership of account and location among directories and sub-directories.

SERVICES DIRECTORY

The commands on the right will call up information on the corresponding program or the program itself.

Access numbers used to connect to The Source	ACCESS
Airline Schedules	HELP AIRSCHED
Almanac (daily)	TODAY
Bestsellers List (Publisher's Weekly)	HELP BESTSELLERS
Book Ordering Service	BOOKS
Bulletin Boards	HELP POST
Business News (updated throughout the day)	BIZDATE
Business Publications Abstract Service (Management Contents, Ltd.)	CONTENTS
Business Services Index	HELP BIZDEX
CHAT (Live conversation with another member of The Source)	HELP CHAT
Classified Ads	HELP POST
-More-	
Conferencing	PARTI
Commands Used on The Source	HELP COMMANDS
Commodity News	BIZDATE
Discount Shopping: General Merchandise	CSTORE
Records and Tapes	MUSICSOURCE
Classic Radio Programs	RADIOSOURCE
Dow Jones Hourly Indexes	DOW
ECOM Mail Message Service	ECOM
Editorials (Syndicated Columnists)	BYLINES
Employment Network	EMPLOY

Encode Text Files	HELP CIPHER
Finance: Latest Stock Market Quotes	HELP STOCKCHECK
Stock Market Reports	HELP UNISTOX
Stock Performance Analysis	STOCKVUE
Stock Portfolio Management	HELP FOLDEX
New York Stock Exchange Indexes	NYSE
Standard and Poors Indexes	SP
Dow Jones Indexes	DOW
Metal Market Activity	METALS
Gold Prices (Daily)	GOLD
Financial Modeling/Business Planning	HELP MODEL1
Financial Programming	HELP INFOX
Games Library	HELP GAMES
Gold Prices (Daily)	GOLD
Horoscopes	TODAY and BYLINES
Hotel Guide (U.S. and Canada)	USROOM
Mail	HELP MAIL
Mailgram Message Service	MGRAM
Members Directory	DISEARCH
Members Currently Online	ONLINE
Menu of Services on The Source	MENU
Metal Market Activity	METALS
Microcomputer News	MICROLINE
Movie Reviews	MOVIES
Music To Order	MUSICSOURCE
News and Sports Service (United Press Int'l.)	HELP UPI
Business News	BIZDATE
News Bulletins	BULLETIN
News Features	TODAY and BYLINES
News About The Source	NEW
New York Stock Exchange Hourly Indexes	NYSE
Personality Spotlight	TODAY
Phone Numbers to Connect with The Source	ACCESS
Programming/Advanced Applications	HELP ADAPPR
Radio Programs to Order	RADIOSOURCE
Rates and Fees for The Source	HELP RATES
Research Service (Information On Demand)	HELP IOD
Restaurant Guides: U.S and Canada	HELP USREST
Shared-File System Explanation	HELP SHAREFILES
Shopping Services: General Merchandise	CSTORE
Records and Tapes	MUSICSOURCE
Classic Radio Programs	RADIOSOURCE
Book Ordering	BOOKS
Ski Reports (winter months only)	HELP SKI
Sports Schedules and Scores	SPORTS
Standard and Poors Hourly Indexes	SP

Stock Market - Latest Quotes		HELP STOCKCHECK
Stock Market Reports		HELP UNISTOX
Stock Performance Analysis (Media General)		STOCKVUE
Stock Portfolio Management		HELP FOLDEX
Suggestions for The Source		HELP SUGBOX
Syndicated Editorials, Columns, Features		BYLINES
System News		NEW
Teleconferencing		PARTI
Text Editor		HELP ED
Travel Services:	Airline Schedules	HELP AIRSCHED
	Hotel Guide (U.S. and Canada)	HELP USROOM
	Make Reservations	HELP TRAVEL
	Vacation Packages	TOURS
TV Listings		TODAY
User-Publishing		PUBLIC
Using The Source		NEW

SELECTED EDUCATIONAL OFFERINGS ON THE SOURCE

Combining ease of use with tremendous power and versatility, The Source's lectronic mail program, SourceMail, is hard to beat. With less than five minutes of instruction you can compose and send a letter to any Source subscriber almost instantaneously. SourceMail is unlike CompuServe's E-Mail in that you have the luxury of immediate disposition of the letters you receive. After reading each letter, SourceMail will prompt you with "Disposition:". At this point you may elect to do any one of a number of things. To name only a few of your options, you may immediately reply, or file the letter for future reference, or even forward it onto another user.

You also have a powerful range of options to utilize in sending mail. By placing ".EX" within the text of your letter you send the letter via "EXpress" mail, meaning your letter will automatically go to the top of the recipient's mailbox to be read first. By entering ".CC (Source ID)" you can automatically send a copy of the letter to another subscriber. "BC" will sent a blind copy so that the recipient will not know that another person has received a copy. If you would like to be automatically notified when your letter has been read, you can include the notation, "AR" for "Acknowledgement Requested." Thus, when the recipient reads your letter, SourceMail will automatically notify you. If some measure of security is desired then send mail "for your eyes only" by adding the notation, ".PASSWORD (+ A Password)" within the text of your letter. When

the recipient attempts to read your letter, they will be prompted for a password. The proper receiver, having been advised by other means of the password, simply enters it and reads the message. Unauthorized users who don't know the password are not allowed access. Besides embedding delivery instructions within the text of your correspondence, you may also string commands together and issue them at command level. For example, entering at the " ->" prompt, "MAIL EX AR AAB939 CC TCA678 BC ACA567" would accomplish the following:

1) An "express" letter will be sent to users AAB939, TCA678, and ACA567.

2) A regular copy is sent to user TCA678.

3) A blind copy is sent to user ACA567.

4) An acknowledgement is requested from each.

Commands such as AR, CC, BC, and so on generally affect only those ID's that follow (i.e. appear to the right of) those commands. This is why all the users in our example were sent mail by express with acknowledgement requested, but the only person blind copied was ACA567.

For those who are accustomed to sending multiple copies of the same letter to a number of individuals, SourceMail will allow you to easily set up a mailing list file that is stored on the system for you. For example, you could set up a mailing list called "colleagues" by typing (at the command level) "ENTER COLLEAGUES". The Source would respond with "ENTER TEXT". At that point you would simply type in the ID's of the people you

wished to have on your mailing list, each on a separate line. When you were done, you would press <RETURN> twice and the file would be stored on the system. To send a the same letter to everyone on your mail list, you would only need to type, "MAIL ML COLLEAGUES", and multiple copies of your correspondence would be sent on their way.

As your communication requirements almost certainly extend beyond the ranks of subscribers to The Source, there are two other services provided for your convenience.

Recently added to The Source is "E-COM", the U.S. Postal Service's electronic mail system described earlier in this paper. Through the savings gained by batch processing, The Source was able to have waived E-COM's minimum requirement of 200 message transmission. Thus, regular subscribers can now send E-COM letters to anyone in the U.S. 24 hours a day, seven days a week, at a cost of only $1.35 for the first page and $.25 for the second (including postage), with a two-page maximum. Delivery is within 24 to 48 hours by first class mail in a highly visible blue and white E-COM envelope.

The Source also offers Western Union Mailgram messages that can be sent to anyone in the U.S. or Canada. Next business day delivery is virtually guaranteed if the mailgram is sent before 4PM.

For online, real-time conferencing, The Source offers "CHAT", and "PARTI". CHAT can a be ponderously slow, but simple way to communicate with anyone who happens to be using The Source at the same time as you. To find out who's online with you, type "ONLINE". This will give you a listing of all users currently on The Source. Then all you have to do is type "CHAT" plus the ID of the person with whom you wish to chat. A notification of your request will appear on his/her monitor and at that point the person can elect to speak with you or refuse the call, in which case you are politely informed that the person is unavailable for CHAT. If you are busily involved in some project on The Source and do not wish to be interrupted by requests to chat, you can automatically block them by typing "CHAT -OFF" at command level. To restore CHAT, type, "CHAT -ON". Chatting is a private, two-person communication system, and it is in that respect that it differs substantially from CompuServe's CB Simulation which is a public free-for-all unless the /TALK command is invoked.

Analogous to CompuServe's SIG teleconferencing is The Source's PARTI for PARTIcipate. In a sense, PARTI combines some of the features of electronic mail, and bulletin boards. At any time there are hundreds of "conferences" being held on PARTI. These consist of messages which are left by users centering around a certain subject matter area. Simultaneously, there may be conferences on education, games, electronic message transfer, or any topic that a group of users wish to discuss. Once you join a conference you may leave your comments, questions, or ideas for others to share and respond to. The next time you

enter PARTI, any messages left during your absence are automatically waiting for you to read. Very often you will find that a celebrity or noted authority in some area is involved in a PARTI conference as a "guest lecturer". For example, in December of 1983, Congressman Ed Markey (D-Mass.), a leading proponent of the nuclear freeze movement, was online lecturing on nuclear war. You could read his comments as well as those of others PARTIcipating, and even leave questions or comments for Congressman Markey. You can participate in a special PARTI conference set up for new users of The Source by typing "PARTI R "PRACTICE"" (the inside pair of quotes are part of the command).

For computer educators, The Source has just mounted (May, 1984) a massive database of information related to all aspects of computing. At no additional charge beyond regular connect time, you may search (by keyword) through thousands of articles on computing which appear in nearly 100 popular computer magazines. You may search individual databases pertaining to hardware, peripherals, software, and so forth, or you may search all of them simultaneously. Thus, finding reviews of modems, disk drives, or articles on programming in Pascal is only a phone call and a keyword away.

If you require high-powered research assistance and don't have access to a major encyclopedic service like DIALOG or BRS, The Source offers Information On Demand (IOD). For a substantial, but reasonable fee (if you place a premium value on your time), IOD will search through hundreds of databases to

answer whatever question(s) you might have about any topic. IOD will acknowledge your request via SourceMail, and if practical, will also deliver the results to you in the same manner. IOD performs its search for you at an hourly rate which you have established and agreed upon before the search begins. In addition to their research services, IOD can provide delivery of nearly any published document from magazine articles to brochures, catalogs, and government documents. They also provide translation services and "Current Awareness". This is a particularly useful service, for it automatically mails to you, on a regular basis, summaries of the most current developments or research in any area that you specify. To find out more about IOD and its rate structure, type "IOD" at command level.

The Source's PUBLIC area is an amazing hodge-podge for user-written materials, ranging from essay and poems to programs, tips, and advice columns. Essentially, it is The Source's idea of electronic publishing. If you or your students have something to say that might be of value to others, you may upload it to The Source for inclusion in one of the many PUBLIC areas. You are paid a cash royalty of 9% based on the gross billing of the amount of time that other users spend reading your contributions (Glossbrenner, 1983).

While the individual offerings of The Source are impressive, the system's greatest strength lies in using them as a unit. It is easy to think of PARTI, SourceMail, CHAT, and POST (their bulletin board) as separate, unrelated entities. However, once

you realize that the preceding all contribute to forming a communications package that is greater than the sum of its parts, it becomes apparent that you command one of the most sophisticated communication systems in the world. Properly used, they can synergistically complement each other like the individual muscles in your body, accomplishing far more as a group than any one could individually.

Suppose that you wished to form a nationwide organization of educators who are interested in microcomputer telecommunication. Without the assistance of an information utility, this would be a slow and formidable task, involving hundreds of hours of work and a significant financial outlay. Let's look at how The Source could assist you.

The Source maintains an electronic address book of its members. It is called up by typing "DISEARCH" (directory search) at command level. Members voluntarily list themselves in the directory along with their ID's and a brief statement of their personal interests. By entering DISEARCH and searching by the keywords "EDUCATION", "TEACHING", or "TELECOMMUNICATION" you will be shown a list of users who entered education, teaching, or telecommunication in their directory citation. You can download this list of potentially kindred spirits onto your diskette and it can be later modified by your word processing program to prepare it to upload back to The Source as a mail list that we'll again call "COLLEAGUE".

Next, use SourceMail to prepare a letter online announcing your fledgeling organization. Better yet, use your word processor to prepare the letter offline (it's cheaper) and then upload it to The Source. By typing "MAIL ML COLLEAGUES" you letter will instantly be sent all over the country to everyone you had selected from DISEARCH earlier. This gets the ball rolling quickly. Now, go to The Source's bulletin board system (POST) and again search for education, teaching, and telecommunication, as well as any other descriptors you think might be helpful. If your search delivers some good additional names, send them your letter and also add their names to your mailing list. While you're there, leave a bulletin or two describing your organization. To increase its visibility, leave it several times, each under a different subject heading such as "teaching" or "telecommunication".

Finally, enter PARTI and see if there are any currently operating conferences that are related to educational telecommunication. The chances are excellent that you will find at least one conference that is discussing that general subject. You may even find enough interested people to start your own PARTI conference.

In the preceding example you have seen how the services of The Source can be used cooperatively to give you enormous communicative power. Think about it. The groundwork for a national network of telecommunicating educators could be laid within a few evening hours for less than $25.00, generously

allowing three hours of connect time to The Source. Check the directories of Compuserve and Delphi the next evening and you're really on your way.

DELPHI

Definitely the "new kid on the block", Delphi is out to make a reputation for itself as the friendliest information utility around. It offers excellent online assistance and makes you feel right at home even when you make an error. Delphi is owned by General Videotex Corporation of Blackstone, Massachusetts. It came online on February 15, 1983 (Murphy, 1984). Delphi was actually the first online electronic encyclopedia and simply built upon itself to produce a major information utility (Cane, 1983). Currently, Delphi has only a few thousand subscribers but one may expect that to change rapidly as news of this online bargain travels. Even the big boys like CompuServe and The Source had to start someplace. Delphi undoubtedly knows what kind of competition it's up against and has resolved itself to survive by being the simplest utility to use. The reader is cautioned though, against equating simple with primitive. Quite the contrary, Delphi has most all of the same features found on CompuServe or The Source, in addition to some that are totally unique. For example, where The Source has PARTI, matched by CompuServe's CB and/or SIG's, Delphi also has a full featured teleconferencing system called simply, "Conference". Delphi's system even allows you to "Page" the entire system others to converse with, whether they are currently using the teleconferencing program or are someplace else in the system. Delphi has electronic mail and E-COM. It has games, user publishing, Comp-U-Store, Western Union Telex, access to DIALOG, electronic banking (of its own!), an appointment calendar, and

online marketing of saleable/tradable items to name just a few of its services. In short, though it may be in its infancy, Delphi is an information utility of high caliber and definitely worth the cost of subscription. To top it off, Delphi has the lowest evening, holiday, and weekend rates of any nationally available information utility. At only $6.00 per connect hour, Delphi might be the first utility a new user should consider rather than the last. In addition, Delphi doesn't charge a dime extra for 1,200 baud access! At $49.95, Delphi's initial membership fee is higher than CompuServe's, but only half that of The Source. Like other information utilities, Delphi arranges special promotions with telecommunications-related manufacturers. This author obtained his subscription to Delphi for only $19.95 by purchasing a certain software package, so look around before you buy!

In keeping with this paper's philosophy of presenting practical information to the new user, the following section contains useful information concerning the details of Delphi's rate structure, hours, important phone numbers, and means of access.

IMPORTANT DELPHI INFORMATION

Corporate Offices: Delphi
General Videotex Corporation
3 Blackstone Street
Cambridge, Massachusetts 02139

Toll-Free Customer Service: 1-800-544-4005

Local Customer Service: 1-617-491-3393

Online: Call "SERVICE"

Access can be made to Delphi via Telenet, Tymnet, DataPac, or Uninet (consult the apppendix for the number nearest you).

Sign-on via Telenet:

1. Dial nearest Telenet number
2. Press <RETURN> twice
3. At prompt "TERMINAL=" press <RETURN>
4. At "@" prompt, enter "C 918102"
5. At message "CONNECTED" press <RETURN>
6. At prompt "USERNAME" enter your membername and <RETURN>
7. At prompt "PASSWORD" enter your pasword and <RETURN>

Sign-on via Tymnet:

1. Dial nearest Tymnet number
2. At prompt "ENTER YOUR TERMINAL IDENTIFIER" type "A"
3. At prompt "PLEASE LOG IN" type "DELPHI"
4. Follow steps 5-7 above

Direct Dial in Boston, Ma. Area: (300/1200 Baud)

576-0862	576-0866	576-1754
576-1679	576-2890	576-2981
576-3972	576-3955	

Communication Protocol:

Full Duplex
8 Bit ASCII Word Length
(Note: If 8 doesn't work with your particular system, try 7)
One Stop Bit
No Parity

DELPHI RATES AND PRICES 5/12/84

Membership Fee:	$49.95
Additional Handbooks	$19.95
Delphi Command Cards	$ 2.00
Delphi Starter Kit:	$29.95

BASIC CONNECT TIME: HOME & OFFICE HOURS:

Home Time (6PM-5AM):	$6.00/Hr.	($9.00 in Canada)
Office Time (8AM-6PM):	$16.00/Hr.	($19.00 in Canada)

Now that you know what Delphi is and how to get in touch with it, let's take a look at the system in operation. Like our trip through CompuServe and The Source, we'll be examining an

edited and annotated download of an actual online session. Delphi maintains what it calls a "guided tour" of itself to assist new users. You will find a download of the tour within the following session.

```
(LOGGING ONTO DELPHI THROUGH TYMNET)

PLEASE TYPE YOUR TERMINAL IDENTIFIER: (PRESS RETURN)

-3543-016-

please log in: DELPHI     (TYPE "DELPHI" IN RESPONSE TO
                           "PLEASE LOG IN")

remote: call connected    (CALL CONNECTED TO DELPHI)

Username: DKSCHOOLER      ("USERNAME" IS ALWAYS YOUR NAME, OR
                            FRACTION THEREOF, AS ASSIGNED BY
                            DELPHI WHEN YOU SUBSCRIBE IT'S
                            JUST LIKE YOUR CIS OR SOURCE ID#)

Password:                 (AS USUAL, IT DOESN'T SHOW)

          You have 1 new Mail message.   (LIKE COMPUSERVE, YOU
                                          GET AUTOMATIC MAIL
                                          NOTIFICATION)

Hello DKSCHOOLER      (I'VE BEEN ACCEPTED BY THE SYSTEM)

Welcome to DELPHI
Copyright (c) 1984
General Videotex Corporation

Logon at    :  6-MAY-1984 00:16:48
Last Logon : 26-APR-1984 23:18:39

MAIN Menu:  (NOTICE THAT THE MENU IS NOT NUMBERED, i.e. IT IS
             SEMI-COMMAND DRIVEN, SOMEWHAT LIKE THE SOURCE
             HYBRIDIZED WITH COMPUSERVE: I.E. THE MENUS ARE
             THERE BUT THE NUMBERS AREN'T)

BULLETIN-BOARDS        LIBRARY
CONFERENCE             MAIL
DELPHI-ORACLE          NEWS
EXIT                   ONLINE-MARKETS
FINANCIAL-SERVICES     PROFILE
GAMES                  SCHEDULER
HELP                   TRAVEL
INFOMANIA              WRITERS-CORNER
```

```
MAIN>What do you want to do? MAIL  (SINCE I WAS NOTIFIED THAT I
                                    HAD MAIL WAITING FOR ME)

MAIL Menu:                          (I'M IMMEDIATELY DELIVERED TO
                                    ELECTRONIC MAIL SECTION)

  CATALOG
  EXIT
  HELP
  MAIL                              (MAIL OPTIONS)
  SCAN
  ECOM
  TELEX
  WRITERS-CORNER

DMAIL>Catalog, Mail, Scan, ECOM, TELEX , Writers ? MAIL

You have 1 new message.

MAIL> READ                        (I'VE CHOSEN TO READ MAIL)


          (TEXT OF LETTER NUMBER 1)
                                                        MAIL #5

From:   SERVICE          3-MAY-1984 11:10
To:     DKSCHOOLER
Subj:   DELPHI April Billing

 This is the DELPHI-Mail bill for Delphi services used during
April.  If you have any questions or comments about your bill,
please direct them via DELPHI-Mail to SERVICE.

        Previous balance                                 2.60
Credit
        Online charges
        Delphi Connect                Eve      3.30
          User Subtotal for DKSCHOOLER                   3.30
                                                      ==========
        Total new charges                                3.30
                                                      ==========
        Current balance                                  0.70


 The balance, since it is less than $ 5.00, will be carried
forward and billed to your credit card next month.  If, in the
meantime, you have received a new card, please  notify SERVICE of
the new number and/or expiration date.

Thank you.

(IT'S A NICE FEATURE OF DELPHI THAT IT SENDS YOU ELECTRONIC MAIL
EACH MONTH DETAILING ALL OF YOUR CHARGES)

MAIL> EXIT                  (LEAVING THE MAIL SECTION)
```

```
MAIN Menu:                (RETURNED TO MAIL MENU)

BULLETIN-BOARDS           LIBRARY
CONFERENCE                MAIL
DELPHI-ORACLE             NEWS
EXIT                      ONLINE-MARKETS
FINANCIAL-SERVICES        PROFILE
GAMES                     SCHEDULER
HELP                      TRAVEL
INFOMANIA                 WRITERS-CORNER

MAIN>What do you want to do? PROFILE  (PROFILE ENABLES THE USER
                                       TO DEFINE MANY PARAMETERS
                                       CONCERNING THE FORMAT OF
                                       DELPHI PLUS LEAVING HIS
                                       OR HER ENTRY INTO THE
                                       DIRECTORY, "IAMWHOIS")

PROFILE Menu:             (PROFILE OPTIONS)

  EXIT                          (EXIT TO MAIN MENU)
  HELP                          (ASSISTANCE IS USING DELPHI)
  IAMWHOIS                      (USER DIRECTORY)
  GUIDED TOUR                   (AUTOMATED TOUR OF DELPHI)
  LENGTH                        (SET SIZE OF PAGE TO SUIT TERMINAL)
  MENU                          (SET DEFAULT MENU FOR LOGON)
  PASSWORD                      (CHANGE PASSWORD)
  PROMPT                        (SET DEGREE OF PROMPTING)
  SET-TYMNET                    (SET TYMNET PARAMETERS)
  TERMINAL                      (SET TERMINAL PARAMETERS)
  USAGE-HISTORY                 (ACCOUNTING OF TIME ON DELPHI)
  WIDTH                         (SETS WIDTH OF SCREEN PRINTOUT)

PROFILE>What would you like to do or set? GUIDED TOUR

     (DOWNLOAD OF AUTOMATED "GUIDED TOUR")

     Greetings, and welcome to our Guided Tour.  My name is Max
and I'll be your guide on this tour through a wonderful part of
the Information Age called Delphi.  First, a few essentials.

     The text will come at you quite fast.  To stop the scrolling
of the text, type CONTROL-S (the CTRL key and the S key
simultaneously), to restart type CONTROL-Q.  More on this later.

     You can't break anything by typing the wrong key, so don't
be afraid to try things.  You're allowed to make mistakes.

     For Delphi to accept commands that you enter you  must
indicate that you are finished by typing the "RETURN", "ENTER" or
"NEW LINE" key.  The one you use depends on the computer or
terminal that you are using.  For convenience, I will use the
term "RET" when I refer to that key.
```

During this tour, I'll be stopping from time to time to let you catch up. Responding to the "RETURN to continue" prompt with "RET" will allow you to continue on the tour. Responding with "EXIT" permits you to leave the tour, but I must ask that you remain within the tour until after the security check.

To reformat your screen dimensions, change your password, change your prompt mode, or reset your terminal type, please select the profile option from the main menu.

We will next go to the Traffic Department to learn some of the traffic signals that Delphi responds to.

Sometimes, Delphi scrolls out text faster than you can read it and you'll want to say:

"Hey, wait just a minute!"

There is a special sequence called an interrupt which will allow you to stop the output and then continue where you left off when you are ready. This sequence is started by pressing the control key which is normally marked "CTRL" and the "S" key at the same time. This is called CONTROL-S and Delphi prints "^S". This will stop the output on the screen, but don't type it yet, since you don't know how to start up again.

While most computers and terminals have a "CTRL" key, some require a combination of keys. If your terminal keyboard has no control key, consult your computer's users guide for instructions about how to type a control character.

Ok, you know how to stop with a CONTROL-S. To restart we use a CONTROL-Q which is entered by holding the "CTRL" and "Q" keys down simultaneously. To review, CONTROL-S suspends output and CONTROL-Q starts is up again.

Now I'll have Delphi send you some text so that you can try it.

One of the unique features of Delphi is it's ability to fit output to any size screen. This prevents words from being broken at the edge of the screen or wrapped around around from the left margin to the right margin.

(THE USER CAN TRY CONTROL-S/CONTROL-Q HERE.)

The next interrupt will be helpful when you want to say:

"I really don't care to read all of this."

CONTROL-O will suspend output on the screen while Delphi will skip through it at high speed. Therefore, you won't have to wade through long displays of text that you may not wish to read.

Try it on this entry from our on-line encyclopedia.

DELPHI (del'-fahy), ruins of an anc. town site and shrine, located 2,000 ft. up on the S slope of Mt. Parnassus in the region of Phocis, C Greece. The shrine was the site of the DELPHIC ORACLE. According to sources in anc. GreeK religion, the site was sacred to APOLLO because it was the place where he slew the serpent Python. Apollo was then called Pythian Apollo, and the PYTHIAN

^O (I PRESSED CONTROL-O)

RETURN to continue (DELPHI JUMPS TO END OF TEXT)

If any of the CONTROL characters do not seem to function as described here then you may have to modify your terminal software to allow these characters to pass through to Delphi.

You will find that CONTROL-Z (end of file) is the most critical control key on Delphi and you should definitely attempt to modify your software if CONTROL_Z does not work for you. Many terminal programs have easily-modifiable parameters which should be explained in the documentation.

Well, that's it for the Traffic Department, on to the Signal Department.

Delphi is a Menu driven system that displays a prompt whenever you are to respond. A prompt is a request for you to give Delphi some information. You have a choice of three types of prompts:

1. The Brief prompt simply indicates which Menu item you are in. For example, MAIN> indicates that you are in the Main Menu.

2. The Verbose prompt summarizes your choices for you. For Example, POLL>(create,list,results,vote)

3. The Menu prompt presents a full menu each time. For example, DELPHI-MAIL:

(RESULTS OF TYPING "DELPHI-MAIL)

Menu

CATALOG
EXIT
HELP
MAIL
SCAN
ECOM
TELEX

DMAIL> (Catalog, Mail, Scan, ECOM, TELEX)>

Currently, you will be assigned the Menu prompt. When you become more familiar with the system, you may change your prompt

mode by choosing Profile from the main menu.

Regardless of the prompt that you select, a menu can always be displayed by typing a "?" at the prompt. A second "?" will put you in the Help mode where information is available on-line.

If you are at the main menu prompt and wish to logoff, enter exit followed by a "RET". Enter "BYE" to logoff from nearly everywhere else in Delphi. To return to the previous menu from whichever sub-menu you may be at, enter CONTROL-Z at the prompt.

When leaving the guided tour, I would like to suggest that you choose Profile from the main menu and IamWhois from the Profile menu. When you enter the IamWhois system, you will be given access to the Delphi user directory. If you wish, you can enter information about yourself so that other members can learn more about you, or you can examine the IamWhois profile of any other member. IamWhois information is stored under KEYWORD headings in a free format. You may use headings that already exist when entering your IamWhois member profile, or you may add keywords of your own choosing. Browsing the IamWhois database is an excellent way to familiarize yourself with the background and interests of other Delphi members.

That's all folks. (END OF GUIDED TOUR)

Now that you have seen the general structure of Delphi, let's examine a few of its more interesting options. First we examine the "Librarian", followed by the Delphi "Oracle", and finally, "Infomania".

(STARTING FROM THE DELPHI MAIN MENU:)

MAIN Menu:

BULLETIN-BOARDS	LIBRARY
CONFERENCE	MAIL
DELPHI-ORACLE	NEWS
EXIT	ONLINE-MARKETS
FINANCIAL-SERVICES	PROFILE
GAMES	SCHEDULER
HELP	TRAVEL
INFOMANIA	WRITERS-CORNER

MAIN>What do you want to do? LIBRARY (VISIT THE LIBRARY)

The Library gives you access to a variety of library services, such as: the Kussmaul Encyclopedia, Dialog Research

Library, and ITT/Dialcom Information Service. Also the Delphi-Info section is found here and contains valuable hints on using the above services, as well as general information such as data access numbers and information on ordering manuals.

```
LIBRARY Menu:

  DELPHI-INFO                 (GENERAL INFORMATION)
  DIALCOM                     (RESEARCH SERVICE)
  EXIT                        (RETURN TO MAIN MENU)
  HELP                        (ONLINE ASSISTANCE)
  KUSSMAUL-ENCYCLOPEDIA       (20,000 ENTRY ENCYCLOPEDIA)
  LIBRARIAN                   (IN-DEPTH RESEARCH)
  RESEARCH-LIBRARY            (GATEWAY TO DIALOG SYSTEM)
  XREF                        (CROSS-REFERENCE FOR ENCYCL.)

LIBRARY>What would you like to do? LIBRARIAN

     Welcome to the Librarian, the offline research service of
DELPHI.  In Librarian you can enter questions on any topic, and
have researchers investigate them for  you.  Any topic can be
chosen; questions can be researched to any depth.  The current
charge for this service is twenty five dollars per hour.
Document delivery and online charges are extra.  A detailed
quotation will be sent to you within two business days of your
request.  You will receive a carbon copy of your request, also.

Librarian is a service of COIN, Inc., which is wholely
responsible for its contents.
Current minimum charge is twenty five dollars per request.

Enter CONTROL-C at any time to cancel your request

ENTER YOUR NAME)
^C      (I CANCELLED WITH A CONTROL-C)

Request cancelled   (DELPHI ACKNOWLEDGES CANCELLATION)

(I'M GIVEN THE "LIBRARY)" PROMPT AGAIN)

LIBRARY>What would you like to do? RESEARCH-LIBRARY
```

This service acts as a gateway through Delphi to the huge information service called DIALOG that was mentioned earlier. You must sign up for this service separately before you are allowed to access it through Delphi who simply acts as a

passageway to DIALOG and not the actual supplier of information.

This is an extra charge service. See DELPHI-INFO in LIBRARY for current rates. Connecting to DIALOG, please wait...

DIALOG temporarily unavailable. Try again later.

(I AM NOT A MEMBER OF DIALOG, SO I'M REFUSED)

DIALOG disconnecting, please wait... (BACK TO LIBRARY MENU)

LIBRARY Menu:

DELPHI-INFO
DIALCOM
EXIT
HELP
KUSSMAUL-ENCYCLOPEDIA
LIBRARIAN
RESEARCH-LIBRARY
XREF

LIBRARY>What would you like to do? XREF

(THIS HANDY FEATURE ALLOWS YOU TO TYPE IN A SUBJECT AND DELPHI WILL GIVE YOU ALL OF THE CROSS-REFERENCES OR "X-REFS" THAT IT HAS FOR YOU TO EXAMINE IN THE KUSSMAUL ENCYLCLOPEDIA.)

Cross reference: WOMBAT (WHAT CROSS-REFS FOR "WOMBAT"?)

The following cross references are available:
Enter 0 to exit XREF

1) MAMMAL (DELPHI FINDS 2 CROSS-REFERENCES)
2) MARSUPIALIA

XREF Number: 2 (I WANT TO SEE X-REF NUMBER 2)

(TEXT OF SECOND X-REF)

MARSUPIALIA (mahr-soo'-pee-ayl-ee-ah) or marsupials, an order of pouched MAMMALS that includes the OPOSSUM, BANDICOOT, KOALA, WOMBAT, WALLABY and KANGAROO. Marsupials are characterized by the fact that their young are born in an incomplete state of development and must be transferred after birth to the pouch in their mother's skin where they complete their development. Marsupials are found in Australia, the E. Indies, C. and S. America, and the southeastern U.S.

The following cross references are available:

```
(SYSTEM IS AUTOMATICALLY CROSS-REFERENCING "MARSUPIALIA" ABOVE.
THUS, THE CROSS-REFERENCING IS NESTED)

Enter 0 to exit XREF

  1) OPOSSUM          (DELPHI FINDS 5 MORE CROSS-REFERENCES)
  2) KOALA
  3) WOMBAT
  4) WALLABY
  5) KANGAROO


XREF Number: 3        (THIS BRINGS ME BACK TO "WOMBAT")


WOMBAT (wahm'-bat), a MAMMAL, in the family Vombatidae, belonging
to the order MARSUPIALIA.  The common wombat (Vombatus hirsutus)
has a short, heavy body covered in coarse, brown hair.  It is a
nocturnal animal and lives in underground burrows, which may be
100 ft.  long.  Wombats feed on grasses, bark, and roots.  The
lifespan is ab.  30 years.  They are native to Australia and
Tasmania I.  The following cross references are available:

Enter 0 to exit XREF

  1) MAMMAL
  2) MARSUPIALIA

0 (EXITING LIBRARY AND RETURNING TO MAIN MENU)


MAIN Menu:

BULLETIN-BOARDS          LIBRARY
CONFERENCE               MAIL
DELPHI-ORACLE            NEWS
EXIT                     ONLINE-MARKETS
FINANCIAL-SERVICES       PROFILE
GAMES                    SCHEDULER
HELP                     TRAVEL
INFOMANIA                WRITERS-CORNER

MAIN>What do you want to do? DELPHI-ORACLE

Please select a category!

SELECTION Menu:

  COMPUTERS      (3 CATEGORIES OF "ORACLE")
  DELPHI
  GENERAL

SELECTION>Which Oracle Category? GENERAL

You have selected the GENERAL Oracle category.
```

DELPHI-ORACLE Menu:

ASK
CHOOSE
EXIT
HELP
SHOW

ORACLE>What do you want to do? HELP (EXPLAIN ORACLE)

This command gives you access to an online battery of experts in a wide variety of topics.

By using this system you can submit your questions on any number of topics, including:

1. using the DELPHI system
2. computer-related topics
3. sources for information

and many others. Your questions will be routed to the appropriate resident expert, who will respond within a short period of time. When you enter the ORACLE subsystem, you will first be asked to choose a question category. This is to facilitate the routing of your question to the person(s) most qualified to answer it. You will see the "SELECTION>" prompt at this point. If you do not know the available question categories, type a ? and they will be listed.

(I HAVE LEFT ORACLE, RETURNED TO THE MAIL MENU AND INFORMED THE SYSTEM THAT I WISH TO VISIT "INFOMANIA")

MAIN>What do you want to do? INFOMANIA

```
INFOMANIA Menu:

 AUTHORS                (ELECTRONIC USER PUBLISHING)
 BOOKSHELF              (ONLINE VERS. OF REAL BOOKS)
 COLLABORATIVE-NOVEL    (PROGRESSIVE, USER-WRITTEN NOVEL)
 EXIT                   (EXIT TO MAIN MENU)
 HELP                   (ASSISTANCE)
 MEMBERS-CHOICE         (COLLECTION OF USER-SUBMITTED PROGRAMS)
 NEWSLETTER             (DELPHI AND SPECIAL INTEREST NEWSLETTERS)
 POLL                   (YOU MAY CONDUCT AN ONLINE POLL)
 IAMWHOIS               (USER DIRECTORY LIKE "DISEARCH")

INFO>(AUTH, BOOKS, COLL, MEMB, NEWS, POLL, IAM) COLL
COLLABORATIVE-NOVEL
```

Collaborative novel is a collective effort by the users of this computer to produce a literary work of art, which can then be enjoyed by those same users as interesting reading material. You will be faced with several options when you choose collaborative novel from the Infomania menu. You can list, create, add to, or read a novel.

The LIST option gives you the complete list of novels currently in production.

You can CREATE a new novel if you wish. There is a maximum of 20 novels that can be in the system at any given time, so you may not be able to create a new novel if this maximum has been reached. Should you create a novel name (which has a maximum length of 60 characters), you will also be asked to create the first chapter, which brings us to..

The ADD option. This allows a new chapter to be appended to the end of an existing novel. You will have to have a title of your chapter (this has a maximum length of 69 characters), and then you will be prompted by a > for the text of your chapter. The chapter itself can be as long as you wish. Should you change your mind about writing this chapter, you can hit ctrl-c to escape, or a ctrl-z will terminate your text.

```
INFO COLLABORATIVE-NOVEL Menu:

  ADD                   (ADD A CHAPTER TO NOVEL)
  CREATE                (CREATE YOUR OWN NOVEL)
  EDIT                  (EDIT EXISTING TEXT)
  EXIT                  (EXIT COLLABORATIVE NOVEL)
  HELP                  (ASSISTANCE)
  LIST                  (LIST NOVEL TITLES)
  READ                  (READ A NOVEL)

NOVEL>(ADD,CREATE,LIST,READ) LIST   (SHOW NOVEL TITLES)
```

```
List of novels:
    A LITTLE TOUCH OF CLASS
    FURTHER TALES OF GENJI
    GVC HISTORY
    QUESTAINS
    THE ADVENTURES OF STEPHANIE
    THE CURSE OF CARLO
    WAR AGAINST THE ASTRORATS

NOVEL>(ADD,CREATE,LIST,READ) READ  (READ A NOVEL)

Which novel(? for list)> A LITTLE TOUCH OF CLASS

Your prompt mode has been temporarily changed to the brief prompt
mode so that the menu doesn't appear every time you want to read
a chapter.  By typing a "?" at the "READ>" prompt, you can see
the full menu.

READ> (RETURN)

(CHAPTER 1 OF "A TOUCH OF CLASS")

   1  LIFE IN THE HUB OF THE UNIVERSE
   AUTHOR: GLENN            PUBLISHED: 21-FEB-1984

Ah!  Life in the hub of the universe.  Almost too good to be
true.  This is what Mr R was thinking when he coasted into town
on a Wednesday morning back in '77.  Upon de-planing at Logon
airport, our hero made his way to the heliport and boarded the
Digital Chopper for a 20 minute flight to Maynard, Mass.  Little
did he know at the time all of the wonderful things that would
happen in the next 7 years.  He could only stare out in wonder as
the Digi-chopper touched down at 129 Parker Street...

End of novel.

Would you like to add another chapter (Y/N)? NO

NOVEL>(ADD,CREATE,LIST,READ) EXIT (LEAVING COLLABORATIVE NOVEL)

(NOW LET'S TAKE A LOOK AT "POLL", DELPHI'S ONLINE, USER-CREATED
POLLING SYSTEM)

INFO>(AUTH, BOOKS, COLL, MEMB, NEWS, POLL, IAM) POLL

INFO POLL Menu:

  CREATE-POLL          (CREATE A POLL OF YOUR OWN)
  EXIT                 (EXIT POLL)
  HELP                 (ASSISTANCE)
  LIST-POLLS           (WHAT POLLS ARE AVAILABLE)
  RESULTS              (RESULTS OF INDIVIDUAL POLLS)
  VOTE                 (VOTE ON ISSUE AND LEAVE COMMENT)
```

```
POLL> CREATE, LIST, VOTE, RESULTS> HELP (ASSISTANCE)

POLL

This item allows you to create a poll, list available polls, vote
on and see the results of a particular poll. The polls created
will remain active (can be voted on) for one month; after this
period, the poll will become inactive or closed and will remain
in that state for two weeks. During those two weeks you can only
see the result of the poll. The poll will be deleted after the
two weeks.

LIST gives you the list of polls available (active and inactive).

RESULTS shows you the result of a particular poll (you will be
prompted for the poll name) at any time.

VOTE lets you vote on a particular poll while it is active. You
will be prompted for the poll name and will also be notified
should the poll you have selected has become inactive. At this
time there are only two catagories of poll available to you, and
both can contain only one argument or question.

POLL> CREATE, LIST, VOTE, RESULTS> LIST (SHOW POLL NAMES)

POLL NAMES
----------

APPLE                    25-Apr-84
BURGERKING VS MCDON      23-Apr-84
COMMUN.SOFTWARE          17-Apr-84
DELPHI VS SOURCE         12-Apr-84
DO YOU LIKE BAUD         22-Apr-84
HACKING                  25-Apr-84
IMMIGRATION PROBLEM      03-May-84
JESSE JACKSON 84         20-Apr-84
MICHAEL JACKSON          30-Apr-84
NIXON                    20-Apr-84
REAGAN BUSH 84           20-Apr-84
RUSSIAN OLYMPICS         09-May-84

INFO POLL Menu:

  CREATE-POLL
  EXIT
  HELP
  LIST-POLLS
  RESULTS
  VOTE

POLL> CREATE, LIST, VOTE, RESULTS> VOTE

Vote in which poll? (type "?" for a list) >RUSSIAN OLYMPICS
```

RUSSIAN OLYMPICS

HOW DO YOU FEEL ABOUT THE RUSSIANS DROPPING OUT OF THE SUMMER OLYMPICS?

You must respond whether you:
1- STRONGLY AGREE
2- AGREE
3- ARE UNCERTAIN
4- DISAGREE
5- STRONGLY DISAGREE

Response) 5 (I "STRONGLY DISAGREE")

Comments? They're more worried about defection than "safety"!
Any corrections ? No

Your vote has been recorded. (ACKNOWLEDGEMENT)

POLL) CREATE, LIST, VOTE, RESULTS) RESULTS

Result of what poll? (type "?" for a list))DELPHI VS SOUR

(I WANT TO SEE RESULTS OF "DELPHI VS. SOURCE POLL)

DELPHI VS SOURCE

DO YOU THINK DELPHI IS A BETTER SERVICE THAN THE SOURCE?

RESULTS
....

	VOTES	PERCENTAGE
YES	9	81.82 %
NO	2	18.18 %
	11	100.00 %

COMMENTS (LEFT BY USERS)
----

1. IN ALL WAYS -- ESPECIALLY $$$$$$$$$$
2. I USE BOTH. THEY EACH HAVE ADVANTAGES AND DISAD-
3. IF I LIVED IN NY, I MIGHT LIKE IT BETTER.
4. THERE IS DELPHI AND THERE THERE ARE .....!
5. JUST LIKE THE POLL TITLE SAY...DELPHI VERSUS THE "$OURCE" NETWORK.
6. WOULD I BE ONLINE, VOTING, IF THE ANSWER WAS NO?
7. DELPHI HAS A BETTER CONFERENCE AND IS LESS EXPENSIVE.

This concludes our examination of Delphi, a fast-growing information utility bound to give The Source and CompuServe a run

for the user's money. In the next section we change gears entirely. Having surveyed the educational offerings of three information utilities, we turn now to a close look at two of the encyclopedic, full-text collections of databases that were discussed much earlier in this paper. Because affordability is a issue of con[illegible]n in the educational community, the three largest, and most expensive vendors, DIALOG, ORBIT, and BRS will not be discussed. In their stead we will examine two of their smaller but very powerful sitlings, DIALOG's Knowledge Index, and BRS's BRS After/Dark.

KNOWLEDGE INDEX

Whereas the information utilities such as Delphi, CompuServe and The Source all appear quite similar, DIALOG's Knowledge Index is an entirely different sort of online service. You won't find any SIGS's, bulletin boards, news wires, games, or even electronic mail. What's left, you say? Nothing, except mountains of factual information on virtually any topic imaginable.

Knowledge Index is a subsidiary of DIALOG, which in turn, is a subsidiary of Lockheed Missile and Space Corporation. DIALOG has been officially online since 1972, but it is not a database in and of itself. It is a vendor, or supplier of online databases that are produced by other firms. Some refer to DIALOG, and its competitors BRS and ORBIT, as "IP's" or information providers. Others have likened them to "information department stores" (Glossbrenner, 1983). A department store rarely manufactures what it sells, rather it simply acts as a clearinghouse for a wide variety of products, adding a bit to the cost of each product so it can make a profit for itself. For example, the massive database of educational literature, ERIC, is not produced by DIALOG, but ERIC can be accessed through DIALOG, as can over 200 other electronic databases, totalling in excess of 60,000,000 records of information. Some estimate that DIALOG has online nearly 95% of the collected body of human knowledge published in the last fifteen years!

The problem with using DIALOG, from the perspective of the private individual use, is sheer cost. DIALOG does not offer a flat rate for connect time like the information utilities just discussed. Each database offered by DIALOG is individually priced. The range of prices is enormous. Some of the databases can exceed $300.00 per connect hour. In addition, many databases charge you a dime or so apiece for each bibliographic citation that is located for you. In short, DIALOG, ORBIT, and BRS are probably out of the reach of the average individual, and are more suited to major libraries, and of course, business and industry.

DIALOG correctly perceived the need for individuals to access major bibliographic databases from their microcomputers at a reasonable cost (Ojala, 1983). Knowledge Index was their response and in November of 1982, they took a number of their most popular databases and, at a flat rate of only $24.00 per hour or about $.40 per minute, made them available to the general public during the evening and weekend hours While $24.00 an hour may at first seem steep, consider the value of your own personal time and how long it would take you, as an educator, to manually search through all ERIC's 500,000 citations, gleaned from over 700 periodicals. Add the hidden costs of gasoline, parking, and photocopying, plus the time lost physically running around the library only to find the journal you want is missing, and you have reduced the $24.00/hr. to a bargain at twice the price.

At the time of this writing, Knowledge Index had 23 of DIALOG's databases online, with more likely to follow as the service grows in popularity. Knowledge Index costs $35.00 to join, but you immediately get it back in the form of a comprehensive users manual, regular updates, and two free connect hours on the system which represents a $48.00 value in itself. There is no monthly minimum, so if you decide that Knowledge Index isn't for you, then you are under no further obligation whatsoever.

While the Kussmaul encyclopedia on Delphi may be suitable for quick, superficial reference, Knowledge Index is an excellent research tool for those involved in higher graduate or professional schooling. No school library should be without a subscription to Knowledge Index.

IMPORTANT KNOWLEDGE INDEX INFORMATION

ADDRESS:

Knowledge Index
DIALOG Information Services
3460 Hillview Ave.
Palo Alto, California 94304

CUSTOMER ASSISTANCE

The KNOWLEDGE INDEX Customer Service telephone is staffed 7:00-11:00 EST Monday through Friday. The numbers to call are:

800-227-5510 (outside California)
415-858-3796 (within California you may call collect)

ACCESS (Consult the appendix for telephone numbers)

1. Uninet (At "SERVICE" Prompt enter, "DLG;KI")
2. Tymnet (At "PLEASE LOG IN" Prompt enter "KI")
3. Telenet (At "@" Prompt enter "C 415 48K")
4. DataPac (Canadian Users)
5. Direct Access 415-858-2738 (Follow tymnet logon)

COMMUNICATION PROTOCOL:

1. Asynchronous
2. 7 Data Bits
3. 1 Start Bit
4. 1 Stop Bit
5. Parity: Even or None
6. XOn/XOff is supported
7. 300 or 1200 baud access is supported

RATES

Initial Subscription Charge: $35.00

Connect Time: $24 per connect hour.

The cost of access to KNOWLEDGE INDEX is based on the amount of time you are connected to the KNOWLEDGE INDEX computer, and includes all TELENET, TYMNET, or UNINET telecommunication costs. There are no minimum fees or monthly handling charges and billing is automatic to your credit card.

HOURS OF OPERATION

Mon.-Thurs.	6:00 PM to 5:00 AM
Friday	6:00 PM to Midnight
Saturday	8:00 AM to Midnight
Sunday	3:00 PM to 5:00 AM

ORDERING DOCUMENTS ONLINE

Through your use of the "KEEP" and "ORDER" commands KI can actually send the entire text of articles found during online searches to you through the mail.

Current prices for complete copies of documents ordered online using the ORDER command:

$6.25 per item plus $.20 per page (or actual cost of item if book, report, etc.).
Outside North America is $8.25. plus $.20 per page (or actual cost of item if book, report, etc.).
There is a surcharge of $6.00 for rush items.

SYSTEM ASSISTANCE

Knowledge Index has an online HELP feature designed to provide a brief explanation of the many options on the Knowledge Index System. Simply enter the word HELP followed by the term for which you are seeking an explanation.

The online HELP feature of Knowledge Index contains the following options:

General Assistance

HELP KI	HELP COMMANDS
HELP HELP	HELP SECTIONS

Commands

HELP BEGIN	HELP LOGOFF
HELP FIND	HELP PAGE
HELP COST	HELP ORDER
HELP DISPLAY	HELP KEEP
HELP RECAP	HELP AU=
HELP EXPAND	HELP JN=

Assistance with Specific Sections

HELP AGRI	HELP GOVE
HELP BOOK	HELP LEGA
HELP BUSI	HELP MAGA
HELP COMP	HELP MATH
HELP CORP	HELP MEDI
HELP EDUC	HELP NEWS
HELP ENGI	HELP PSYC

System Information Assistance

HELP HOURS
HELP RATES
HELP BILLING
HELP TELECOM
HELP TERMINAL
HELP SERVICE
HELP NTISCOD

Knowledge Index Command Structure

When using KI commands, wait for the "?" prompt. Leave a blank between command and anything that follows. Send command to KI by entering a Carriage Return. To correct a typo, use Control H to backspace and type over, or the <ESCAPE> key to erase entire line and get new ? prompt.

Commands can be abbreviated with one or two letters (in parentheses below). For details on use of a command, enter HELP followed by command name.

KI Commands:

BEGIN (B) followed by section name to enter a database.

FIND (F) followed by subject words and expressions to locate citations.

DISPLAY (D) followed by Set number to read search results.

RECAP (R) Reviews database name and sets created in current search.

EXPAND (E) followed by subject word to view online index.

PAGE (P) to progress through output from DISPLAY or EXPAND (P- to go back).

KEEP (K) followed by set and item number to put items in Set 99 before ordering full copies of the documents.

ORDER (O) followed by KI to order copies of documents or followed by CANCEL and the order number to cancel an order that has already been placed.

COST for cost estimate for search in current search session. COST does not affect the search itself.

LOGOFF to end search session.

? The question mark symbol at the end of a search descriptor acts as a "wildcard" and will allow you to locate items that have a synonomous beginning, but several possible endings. For example, to find information on "running" you could search individually under the descriptors "runner", "run", or "running" or you could simply search for "run?". KI would match on "run" regardless of what ending the word had.

KNOWLEDGE INDEX DATABASES

Currently, there are 14 different sections available in KNOWLEDGE INDEX. Each section contains one or more databases. The database name is the same as the section name but followed by a number. The reader will find that most of the databases listed below disclose their general contents by virtue of their names and source of publication.

Section name	Database name
1. AGRI - AGRIculture	
Database: AGRICOLA	(AGRI1)
2. BOOK - BOOKs	
Database: BOOKS IN PRINT	(BOOK1)
(Copyright by R.R. Bowker Co.)	
3. BUSI - BUSIness Information	
Database: ABI/INFORM	(BUSI1)
(Copyright by Data Courier, Inc.)	

Database: TRADE AND INDUSTRY INDEX (BUSI2)
(Copyright by Information Access Company)

4. COMP - COMPuters and Electronics
Database: INSPEC (COMP1)
(Copyright by Institution of Electrical Engineers)

Database: INTERNATIONAL SOFTWARE DATABASE (COMP2)
(Copyright by Imprint Software)

Database: MICROCOMPUTER INDEX (COMP3)
(Copyright by Microcomputer Information Services)

Database: THE COMPUTER DATABASE (COMP4)
(Copyright by Management Contents)

5. CORP - CORPorate News
Database: STANDARD & POOR'S NEWS (CORP1)
(Copyright by Standard & Poor's)

6. EDUC - EDUCation
Database: ERIC (EDUC1)

7. ENGI - ENGIneering
Database: ENGINEERING LITERATURE INDEX (ENGI1)
(Copyright by Engineering Information)

8. GOVE - GOVErnment Publications
Database: GPO PUBLICATIONS REFERENCE FILE (GOVE1)

Database: NTIS (GOVE2)
(Copyright by National Technical Information Service)

9. LEGA - LEGAl Information
Database: LEGAL RESOURCE INDEX (LEGA1)
(Copyright by Information Access Company)

10. MAGA - MAGAzines
Database: MAGAZINE INDEX (MAGA1)
(Copyright Information Access Corp.)

11. MATH - MATHematics
  Database: MATHFILE (MATH1)
   (Copyright by the American
    Mathematical Society)

12. MEDI - MEDIcine
  Database: MEDLINE 1980+ (MEDI1)
            MEDLINE 1973-79 (MEDI2)
            MEDLINE 1966-72 (MEDI3)

  Database: INTERNATIONAL PHARM-(MEDI4)
            ACEUTICAL ABSTRACTS
   (Copyright by American Society
    of Hospital Pharmacists)

  Database: BIOSIS PREVIEWS
      1981+ (MEDI5)
            BIOSIS PREVIEWS
      1977-1980 (MEDI6)
            BIOSIS PREVIEWS
      1969-1976 (MEDI7)
   (Copyright by BioSciences Information
    Service of Biological Abstracts)

13. NEWS - Newspapers
  Database: NEWSEARCH (NEWS1)

  Database: NATIONAL NEWSPAPER
      INDEX (NEWS2)
   (Copyright by Information Access
    Corp.)

14. PSYC - PSYChology
  Database: PSYCINFO (PSYC1)
   (Copyright by American Psycholo-
    gical Association)

  Database: MENTAL HEALTH
      ABSTRACTS (PSYC2)
   (Copyright by IFI/Plenum Data
    Company)

DEMONSTRATION OF KNOWLEDGE INDEX

Suppose that without any further explanation, you were given an assignment to locate the following pieces of information:

1. Current research on the psychological aspects of running, with particular emphasis upon marathoners.
2. The publications of Ohio State University Education Professor, Dr. Stanley L. Helgeson.
3. The publications of Ohio State University Botany Professor, Dr. Gary L. Floyd.
4. An extensive literature search of articles related to "modems".

How long would you need-a week, two weeks, a quarter? And what about the cost? Through the following demonstration of the power of Knowledge Index, you will see that the above assignment could be completed in less than half an hour at a cost of a little more than $10.00. The actual search time through KI took less than ten minutes. The half hour figure is mentioned only because it would take approximately that long for the citations to be downloaded to your system. I was able to find the answers to the four questions above by performing single searches on four different KI databases. Simply finding the answers (not downloading them) was accomplished in .153 hours at a cost of only $3.67! The following is an annotated transcript of the online session just described. Along the way, assorted commands and features of Knowledge Index are described.

```
(ACCESSING KNOWLEDGE INDEX THROUGH TYMNET)

Please type your terminal identifier: A

-3543-023-
please log in: KI  ("KI" IS CODE REQUEST FOR KNOWLEDGE INDEX)

DIALOG: call connected  (CONNECTED TO THE PARENT DIALOG)

DIALOG INFORMATION SERVICES
PLEASE LOGON:
 ********
 HHHHHHHH    ("H" AND "S" HAVE NO USER SIGNIFICANCE)
 SSSSSSSS     KI CALLS THEM "MASKING CHARACTERS")
?U44721      (YOUR ACCOUNT NUMBER)

********

ENTER PASSWORD:
 ********
 HHHHHHHH    (MORE "MASKING CHARACTERS")
 SSSSSSSS
?WATCH*IT    (WITH KI YOUR PASSWORD SHOWS, SO BE CAREFUL!)


WELCOME TO KNOWLEDGE INDEX  (ADMITTED TO KNOWLEDGE INDEX)
Accounting starting at  8:46:24 EST

For  instructions  on  how  to  use Knowledge Index, enter HELP
KI or ?
Otherwise  enter  your  commands. April cost data now online.
**Type BULLETIN for KI news.

** MEDI1 IS NOT WORKING TODAY ** (MEDI1 DATABASE IS OFFLINE)
```

Let's tackle the question about the psychological aspects of running first. The most logical of KI's 23 databases to search would probably be "PsycINFO", produced by the American Psychological Association. On KI it is referred to as "PSYC1. The command "B" or "BEGIN", coupled with the database name, will get us where we want to go.

```
?BEGIN PSYC1                    (BEGIN SEARCH IN PSYC1 DATABASE)

 4/16/84  18:06:08 EST     (TRANSFERRED TO PSYC1)
Now in PSYCHOLOGY (PSYC) Section
  PsycINFO (PSYC1) Database
  (Copyright 1984 American Psychological
            Association)

?FIND DISTANCE RUNN? OR MARATHON?  (SEARCH FOR DESCRIPTORS.
                                    NOTE USE OF "?" WILDCARD
                                    AND THE USE OR LOGICAL
                                    BOOLEAN OPERATORS LIKE
                                    "AND", "OR", & "NOT")

(KI COMPLETES SEARCH IN LESS THAN 3 SECONDS. HERE ARE RESULTS)

                 28 DISTANCE RUNN?
                232 MARATHON?
            S1   258 DISTANCE RUNN? OR MARATHON? (RESULTS)

(KI IS SAYING THAT IT HAS FOUND 28 MATCHES TO THE DESCRIPTOR
"DISTANCE RUNN?" AND 232 MATCHES FOR THE DESCRIPTOR "MARATHON".
I USED THE OPERATOR "OR" TO SEARCH BOTH DESCRIPTORS
SIMULTANEOUSLY.  KI SHOWS 258 CITATIONS CONTAINING EITHER
DESCRIPTOR.  IT IS HOLDING THEM IN A "SET", IN THE MATHEMATICAL
SENSE, CALLED "S1")

?SET V 0  (THIS COMMAND ALLOWS CITATIONS TO CONTINUOUSLY
           SCROLL WITHOUT A PAUSE)

Horizontal line length remains 64
Vertical line count changed from 24 to 0

?D 1/M/1-3   (DISPLAY SET#1/MEDIUM FORMAT/CITATIONS 1 TO 3)

1/M/1          (CITATION #1)
70-12716 Vol No: 70 Abstract No: 12716
  Comparison of personalities between marathon runners and
cross-country skiers.
  Jerome, Wendy C.; Valliant, Paul M.
  Laurentian U of Sudbury, School of Physical Education, Canada
  Perceptual & Motor Skills   1983 Feb Vol 56(1)  35-38   CODEN:
PMOSAZ   ISSN: 00315125

1/M/2          (CITATION #2)
69-05654 Vol No: 69 Abstract No: 05654
  A psychological study of Finnish joggers participating in the
Athens marathon of 1977.
  Salmimies, Pekka; Lehvonen, Ritva
  U Helsinki Central Hosp, Finland
  Psychiatria Fennica   1979 115-120    CODEN:   PSFNBI    ISSN:
00797227
```

1/M/3 (CITATION #3)
70-10282 Vol No: 70 Abstract No: 10282
Mental and emotional aspects of long-distance running.
Callen, Kenneth E.
Portland VA Medical Ctr, Psychiatry Service, OR
Psychosomatics 1983 Feb Vol 24(2) 133-151 CODEN: PSYCBC
ISSN: 00333182

We could have downloaded all 258 citations in set 1, but I think you get the idea that KI was giving us good "hits" or sources of information. Undoubtedly, there would be a certain amount of unrelated, useless information delivered in the search. For example, "MARATHON" doesn't mean just a long foot race. It could mean an endurance contest of any kind. We might have gotten a citation concerning the psychological effects on participants of 72 hour underwater chess tournaments. If too many extraneous hits are received, a change in search descriptors is indicated.

Now let's go after the literature search on modems. Knowledge Index maintains several computer-related databases, but probably our best bet would be "COMP3", The Microcomputer Index. This base has over 12,000 articles taken from more than 40 computer-related publications and is updated monthly.

?BEGIN COMP3 (CHANGE TO "COMP3" DATABASE)

5/12/84 14:07:19 EST (TRANSFERRRED TO COMP3)
Now in COMPUTERS & ELECTRONICS (COMP)
Section
Microcomputer Index (COMP3) Database
(Copyright 1984 Micro Info. Serv. Inc.)

(BEGINNING SEARCH PROCESS FOR MODEM(S). NOTE THE USE OF "?" AS A WILDCARD CHARACTER. THIS ALLOWS KI TO MATCH ON MODEM OR MODEMS OR ANYTHING ELSE THAT BEGINS WITH THE ROOT WORD "MODEM")

```
?FIND MODEM?  (FIND ANYTHING THAT BEGINS "MODEM...")

          S1    236 MODEM?    (KI SHOWS 236 CITATIONS AND IS
                               STORING THEM IN "S1" OR SET 1)
```

Knowledge Index can display citations in three different, user-selectable, formats: short, medium, and long. Short includes just the title and database ID or reference number. Medium is a "typical" bibliographic citation, listing the article's name, author, source, date, and length. Long gives all of those features plus an abstract with descriptors. In the following search, the same two modem citations are displayed first in short, then medium, and finally, in long format.

```
?D 1/S/1-2  (DISPLAY SET 1/SHORT FORMAT/FIRST THROUGH
             SECOND CITATIONS)

(CITATION NUMBER 1)
1/S/1
059556    8342169
   Toward smarter modem programs  (JUST TITLE AND ID NUMBER)

(CITATION NUMBER 2)
1/S/2
059423    8341149
   What's next for printers?
```

Note that when citations are displayed in short format, all you get is the title and an identification number within the database. This is useful when there are a large number of citations and you don't know which are going to be worth a longer look until you see their titles. You can download the entire list to your diskette in short format and logoff. Then, at your leisure you can examine a printout of the list and note the ID numbers of those on which you would like more information. You may go back online to KI and request specific citations in their medium or long form by simply referring to their identification

numbers. You need not perform the search from scratch again.

Now let's look at same citations, only this time displayed in their "medium" format.

```
?D 1/M/1-2 (DISPLAY SET 1/MEDIUM FORMAT/CITATIONS 1-2)

(CITATION NUMBER 1)
1/M/1
059556   8342169
   Toward smarter modem programs
   Bilofsky, Walt
   Microsystems,   Jul/Aug 1983,  v4 n7 p56-59,  4 pages   ISSN:
0199-7955

(CITATION NUMBER 2)
1/M/2
059423   8341149
   What's next for printers?
   Derfler, Frank
   Microcomputing,   Jul  1983,   v7 n7 p30-34,  5 pages   ISSN:
0744-4567

(FINALLY, HERE ARE THE SAME CITATIONS IN LONG FORMAT)

?D 1/L/1-2 (DISPLAY SET 1/LONG FORMAT/CITATIONS 1-2)

(CITATION NUMBER 1)
1/L/1
059556   8342169
   Toward smarter modem programs
   Bilofsky, Walt
   Microsystems,   Jul/Aug 1983,  v4 n7 p56-59,  4 pages   ISSN:
   0199-7955
   Languages: English
   Document Type: Article
   Geographic Location: United States
   Describes a simple language for writing protocols that
   interact with remote computers.  Notes that the modem
   does the work with a program that dials and logs on to
   a remote system.
   Descriptors: *CP/M; *Modem; *Languages
   Identifiers: SmartModem; D.C. Hayes

(CITATION NUMBER 2)
1/L/2
059423   8341149
   What's next for printers?
   Derfler, Frank
   Microcomputing,   Jul  1983,   v7 n7 p30-34,  5 pages   ISSN:
   0744-4567
```

Languages: English
Document Type: Column
Geographic Location: United States
OVERVIEW column examines new developments in printers, an internal mode for the IBM Personal Computer and a communications device that includes an acoustic modem, an auto-answer and autodial capabilities.
Descriptors: *Dot-Matrix Printer; *Modem; *IBM Personal Computer; *Prod uct Announcement
Identifiers: Microline 93; OKidata; Ven-Tel Modem; Voice Station

To handle the inquiry about Dr. Stanley Helgeson's publications, we go to the educationally oriented database, ERIC, called "EDUC" by Knowledge Index. We are searching here because Dr. Helgeson is a noted science educator. Note that this search, as well as the next one concerning Dr. Floyd's publications, are conducted in a different manner than we have previously examined. In each of the next two examples, we have an individual's name and wish to find a list of his publications. Assuming we don't know exactly what area of science education in which Dr. Helgeson concentrates, nor do we know anything about Floyd's particular expertise, a title or subject search would be virtually impossible. In addition to performing subject searches, Knowledge Index allows you to search by author, year, or journal. Since we want all publications, appearing in all journals, a search by year or journal name is not appropriate. Asking Knowledge Index to search by author will give us a listing of all indexed publications regardless of their date or type of publication. With its millions of records, Knowledge Index will almost certainly index more than one Stanley Helgeson or Gary Floyd, thus it would be helpful to see an index of Knowledge Index's authors so our search could be as precise as possible.

Searching the author index of each database is also a good idea because authors are not always consistent in the way their names are cited. Some use their last name and initials, while some list their entire name. Compounding the problem, some authors are listed as the editor of someone else's work and can often be difficult to find.

The "AU" command is used to do an author search on Knowledge Index. To find Drs. Helgeson or Floyd's publications we simply enter:

?FIND AU=HELGESON, STANLEY or

?FIND AU=FLOYD, GARY

To search the KI index for alternative forms we use the "E" or "EXPAND" command in this manner:

?EXPAND AU=HELGESON, STANLEY or

?EXPAND AU=FLOYD, GARY

```
?BEGIN EDUC    (TRANSFERRING TO THE "ERIC" DATABASE)

 5/12/84  14:09:53 EST
Now in EDUCATION (EDUC) Section
  ERIC (EDUC1) Database

?E AU=HELGESON, STANLEY L.  (EXPAND THE AUTHOR INDEX AROUND
                              HELGESON, STANLEY L.)

(KI RESPONDS WITH A SECTION OF ITS AUTHOR INDEX)

Ref Items  Index-term
E1      1  AU=HELGESON, JO VOGEL
E2      1  AU=HELGESON, MARC E.
E3      1  AU=HELGESON, STANLEY     (POSSIBLE "HIT")
E4     13 *AU=HELGESON, STANLEY L. (THE "*" MARKS MY SEARCH)
E5     18  AU=HELGESON, STANLEY L., ED. (ACTING HERE AS EDITOR)
E6      1  AU=HELGESON, STANLEY, COMP.  (POSSIBLE "HIT")
E7      1  AU=HELGREN, FRED J.
E8      1  AU=HELIN, E. B.
                  For more, enter PAGE
```

The index list shows 13 citations for Helgeson, Stanley L., and 18 more for Helgeson, Stanley L., ed. (editor). The single citation for Helgeson, Stanley, and for Helgeson, Stanley, Comp. are also probably hits, but we can't we sure without examining them. For purposes of illustration, let's assume that the first two are the ones we want. Notice that Knowledge Index assigns each line of the index an "E" number at its beginning. To get KI to collect the publications for our examination we type the "FIND" command, followed by the line numbers in question, which in this example are E4 and E5.

```
?FIND E4 OR E5

                13 AU=HELGESON, STANLEY L.
                18 AU=HELGESON, STANLEY L., ED.
        S4      31  E4 OR E5

(KI IS HOLDING A TOTAL OF 31 CITATIONS FOR EXAMINATION IN A GROUP
IT CALLS, "S4" OR "SET 4".  TO DISPLAY ONE OF THEM IN MEDIUM
FORMAT, WE TYPE THE FOLLOWING COMMAND:)

?D 4/M/1

(CITATION NUMBER 1)
4/M/1
EJ011305
  National Programs in Science and Mathematics Education, Recent
Events and Future Aspirations
  Schlessinger, Fred R.; Helgeson, Stanley L).
  Sch Sci Math, 69, 7, 633-643
  1969 Oct.1969
```

Turning now to the publications of Dr. Gary Floyd, Ohio State University botanist, we must change Knowledge Index databases. Most of KI's biological citations are contained within 3 separate databases, MEDI5, MEDI6, and MEDI7, collectively referred to as "BIOSIS PREVIEWS". Each database contains publications printed

within a certain range of years. We will search MEDI5, which contains citations from 1981 to the present.

```
?BEGIN MEDI5   (TRANSFERRING TO "BIOSIS PREVIEWS")

 5/12/84  14:13:48 EST
Now in MEDICINE (MEDI) Section
  Biosis Previews (1981-Present)
    (MEDI5) DATABASE
  (Copyright 1984 Biosciences
  Information Services)

?EXPAND AU=FLOYD, G L    (SHOW INDEX: NOTE THIS BASE USES
                           INITIALS, NOT FULL NAMES)

Ref Items  Index-term          E2      2  AU=FLOYD E E
E3         AU=FLOYD G
E4      1  AU=FLOYD G A
E5     16 *AU=FLOYD G L   (HERE'S OUR MAN)
E6      1  AU=FLOYD G T
E7      1  AU=FLOYD H
                   For more, enter PAGE
?FIND E5
          S1     16 AU=FLOYD G L  (16 HITS IN SET 1)

(DISPLAY TWO CITATIONS IN MEDIUM FORM)

?D 1/M/1-2

1/M/1
77056988
  FINE STRUCTURE OF THE ZOO SPORES OF AN ENTEROMORPHA-SP ULVALES
CHLOROPHYTA COLLECTED FROM FRESH WATER.
  STUESSY C L; FLOYD G L; O'KELLY C J
  DEP. BOTANY, OHIO STATE UNIV., COLUMBUS, OHIO 43210, USA.
  BR PHYCOL J   18 (3). 1983.  249-258.   CODEN: BPHJA

1/M/2
76085468
  THE FLAGELLAR APPARATUS OF ENTOCLADIA-VIRIDIS MOTILE CELLS AND
THE TAXONOMIC  POSITION OF THE RESURRECTED FAMILY ULVELLACEAE
ULVALES CHLOROPHYTA.
  O'KELLY C J; FLOYD G L
  DEPARTMENT OF BOTANY, OHIO STATE UNIVERSITY, 1735 NEIL AVENUE,
COLUMBUS, OHIO 43210.
  J PHYCOL   19 (2). 1983.  153-164.   CODEN: JPYLA

?LOGOFF    (SIGN-OFF OF KNOWLEDGE INDEX)
(SYSTEM LOGS ME OFF AND ESTIMATES COSTS)
 4/16/84  18:14:42 EST
Session Total: 0.153 Hours $   3.67  User U44721
```

BIBLIOGRAPHIC RETRIEVAL SERVICE (BRS)

Competing directly with DIALOG, Bibliographic Retrieval Service or BRS offers a number of educationally oriented databases. For educators there are essentially three ways to access BRS. The first is to subscribe to the BRS Colleague Educator program, SPIN. SPIN stands for School Practices Information Network and it offers a wide range of online education databases plus electronic communications (electronic mail, newsletters, bulletins, and user directory). The backbone of BRS's educational offerings is SPIF, or the School Practices Information File. This database was developed by BRS itself and indexes a great deal of information on school programs, practices, services and products of interest to teachers and administrators alike. Whereas ERIC is largely archival in nature, SPIF strives to be an up-to-date referral file of current projects and materials being utilized in educational settings (Pietro and Kremin, 1983). SPIF offers information regarding evaluation, contact personnel, availability, type of resource, grade level, target audience, as well as a detailed abstract. Other educationally oriented databases available through SPIN include, ERIC, BEBA (Bilingual Education Bibliographic Abstracts), RICE (Resources in Computer Education), and PETE (Peterson's Guides).

Subscription to BRS's Colleague Educator program is through an educational institution or organization only. Your school building, district, or educator's group can subscribe for a one

time charge of $150.00. Connect time is $18.00 per hour plus an $8.00 per hour telecommunications surcharge. In addition, there is a monthly minimum of $18.00 whether you use the service or not.

Of course, you may also subscribe to Bibliographic Retrieval Service as a whole. But like DIALOG, BRS is a very expensive service and probably out of the financial reach of the average educator. However, joining BRS as an educational organization could bring your school district a number of excellent education databases in addition to those already mentioned including:

1. Exceptional Child Education Resources (ECER)
2. Mental Measurements Yearbook (MMYD)
3. Ontario Education Resources Information (ONED)
4. PsycINFO (Psychological Abstracts) (PSYC)
5. Resources in Vocational Education (RIVE)
6. Vocational Education Curriculum Materials (VECM)
7. American Academic Encyclopedia (AAED)
8. American Men and Women of Science (MWSC)
9. Books in Print (BBIP)
10. Educational Testing Service Test Collection (ETSF)
11. Druginfo (DRSC)
12. Alcohol use/abuse (HAZE)
13. Data Processing and Information Science Contents (DISC)
14. Ulrich's International Periodicals Directory (ULRI)

Your third option for accessing BRS is through its little brother, BRS/After Dark. This new service is very much analogous to DIALOG's Knowledge Index. It is an attempt to offer evening and weekend access to a subset of BRS's collection of databases to private individuals. Comparing BRS After/Dark to Knowledge Index is like comparing CompuServe to The Source. Both are directed towards the same goal. In fact, many of BRS After/Dark's databases are duplicated by Knowledge Index. The difference lies in two areas, delivery format and rate structure.

As noted in the last chapter, Knowledge Index is a command driven operation. It never prompts you with menus from which to choose. Once the system presents you with the "?" prompt, you're on your own. In contrast, signing on to BRS After/Dark is much like logging onto CompuServe or The Source. You are greeted with a menu and requested to make a selection in order to get where you want to be in the system. Typically, BRS After/Dark will greet you in the following manner:

```
TONIGHT'S MENU IS:

NUMBER      ITEM

  1         LOOKING FOR INFORMATION?...SEARCH SERVICE
  2         WANT TO HEAR THE LATEST?...NEWSLETTER SERVICE
  3         NEED A PROGRAM?...SOFTWARE SERVICE
  4         KEEP IN TOUCH!...ELECTRONIC MAIL SERVICE
  5         LET'S MAKE A DEAL...SWAP SHOP
  6         WANT A SNEAK PREVIEW?...COMING ATTRACTIONS
  7         WANT TO CHANGE YOUR SECURITY PASSWORD?...
            SECURITY

TYPE IN MENU ITEM NUMBER THEN HIT ENTER KEY FOR DESIRED
SELECTION
```

Once you've navigated through the menus and called up the database that you wish to search, BRS After/Dark begins to look a great deal like Knowledge Index. The same basic commands are there, although they may be represented by a different letter. For example, on Knowledge Index, searching is done via the "F" or "FIND" command. On BRS After/Dark, the equivalent command is "S" for "SEARCH." Boolean logical operators such as "and", "or", and "not" are supported by both services.

The second major difference between KI and BRS After/Dark lies in the latter's rate stucture. Unlike Knowledge Index which charges a flat $24.00 per hour, BRS After/Dark follows the pattern of its parent, BRS, and prices its databases individually. You can expect to pay anywhere from a dirt-cheap $6.00 per hour to search ERIC, up to $15.00 per hour for Chemical Abstracts or ABI/INFORM. Thus, it is more difficult to monitor your connect charges on BRS After/Dark since they fluctuate as a function of the particular database being searched. BRS After/Dark also imposes a $50.00 one-time subscription charge and will bill you a minimum of $12.00 a month whether you logon or not (Janke, 1983). It's up to you to decide which is the better deal. BRS After/Dark has a cheaper connect/hour rate, but has a minimum monthly charge. Knowledge Index costs less to join ($35.00 compared to $50.00), and has no monthly minimum.

IMPORTANT BIBLIOGRAPHIC RETRIEVAL SERVICE INFORMATION

Address:

Bibliographic Retrieval Service
1200 Route 7
Latham, New York 12110

Customer Service:

1-800-833-4707 (Continental U.S.)
1-518-783-1161 (Latham, N.Y. Headquarters)
1-215-527-4116 (Philadelphia Field Office)

Access:

1. Uninet
2. Telenet
3. Tymnet
4. DataPac (Canada)

Operating Hours for BRS After Dark:

6:00 PM (local) to 4:00AM (Eastern) Monday through Friday

6:00AM (local) to 4:00AM (Eastern) Saturday

7:00PM (local) to 4:00AM (Eastern) Sunday

Rates:

$6.00-$15.00 per hour at either 300 or 1,200 baud
$50.00 Initial subscription fee
$12.00 per month minimum charge

Billing:

To major credit card or direct with a $250.00 deposit

COMPUTERIZED BULLETIN BOARD SYSTEMS (CBBS'S)

We would be remiss if we did not conclude our online tour with a brief mention of the hundreds of free, privately run, computerized bulletin board systems (CBBS's) found throughout the country. These systems are labors of love, put online by their sysops or system operators. When you call a CBBS, you aren't reaching a giant corporation. Far from that, you're probably ringing into someone's basement or den, where someone has dedicated a microcomputer to maintaining an electronic messaging system at little or no cost to you. Bulletin boards come in all sizes and shapes. Most are free, while others exact a variable membership charge. Some offer just the ability to read and leave electronic messages, while others offer games, newsletter, dating services, and public domain (non-copyrighted) software for free downloading to your computer. Some are devoted to a particular subject area (like CompuServe's SIGs), while others are "jacks-of-all-trades." Genuinely unusual is a local service in Evanston, Illinois called GameMaster. Calling this system a bulletin board is a gross understatement for it is actually a multi-room electronic mansion with each of its "rooms" dedicated to a particular game or group of games. You enter the mansion through the "foyer" where your presence may be announced to everyone else via the house's public address system. You may confer with others in the "parlor", check your mail in the "mail room", or read "books" of instructions in the "library". The illusion created in your mind by this elaborate system is truly amazing. Spend a couple dollars for a long distance call to Chicago and visit with GameMaster. Its number is 1-312-475-4884.

Using CBBS's is an excellent low-cost way to get initiated into the world of microcomputer telecommunications. There are so many of them that you should be able to reach at least one with a local call. The first time you logon, press the <RETURN> key once or twice after you hear the carrier tone. The system will acknowledge you with some sort of greeting message and will ask you to sign in. Simply follow the prompts and enjoy yourself. Explore to your heart's content and feel free to leave a message online for the sysop. Most systems allow for this. If you have a friend who is also equipped for telecommunications, you can practice sending messages back and forth to each other. If you can comfortably handle the local bulletin board, you should have no fear of taking on CompuServe, The Source, or any other online service.

To assist you in locating the numbers of CBBS's in your area, I have included a large list of their telephone numbers in the appendix. They are arranged by area code and have certain notations concerning their baud rate, hours of operation and subject area orientation (if known). This list was obtained free of charge by calling Jim Cambron's CBBS at 1-913-649-1207. Mr. Cambron maintains the largest and most complete CBBS directory available online. His list is so extensive that you should plan on spending 25 minutes online just downloading his directory to your system. He also publishes a newsletter on CBBS. His address is listed in the appendix. His directory is updated every 90 days, dropping off defunct systems and adding new ones.

Should you get no response from one of the numbers listed, simply hang up, make a notation next to the number, and try another one.

Computer telecommunications can truly be a valuable addition to your professional repertoire. A modem can knock down the walls of your classroom and allow you and your students to electronically join hands with the rest of the world. Give it a try, the technology is here and it could really make a difference.

REFERENCES

Adams, Roe R. 1983. "Who Will Win at Videotex?" Softalk. Volume 4, Oct., pp.101-104.

Archibald, Dale. 1983. "Apple on the Phone: What Is and What's To Come in Telecommunications". Softalk. 3(5):185-190.

Archibald, Dale. 1983. "Apple on the Phone: What Is and What's To Come in Telecommunications Part II." Softalk. 3(6):100-105.

Arrents, Stephen. 1983. "Apple Cart." Creative Computing. November, 1983, 314-318.

Cane Mike. 1983. The Computer Phone Book. New American Library. New York

Chalgren, Bill. 1983. "Modems for Micros: Your Computer Can Talk on the Phone." Classroom Computer Learning. 4(3):66-67.

CompuServe Corporation. 1982. CompuServe Information Service User's Guide. CompuServe Incorporated. Columbus, Ohio.

Derfler, Frank J. 1982. Microcomputer DataCommunication Systems. Prentice-Hall, Englewood Cliffs, N.J.

Dewey, Patrick R. 1983. "A Professional Librarian Looks at the Consumer Online Services... The Source, CompuServe, Apple Bulletin Borad, et al.." Online. September, pp. 36-40.

Dialog Information Services, Inc.. 1983. Knowledge Index User's Workbook. Dialog Information Services, Inc.. Palo Alto, Ca.

Edelhart, Mike and Owen Davies. 1983. The Omni Online Database Directory. Collier Books, Macmillan Publishing Company, New York.

Ferrarini, Elizabeth M. 1984. "Online Newsletters." Link-Up. 1(5):42-44.

Ferrarini, Elizabeth M. 1984. "Bulletin Board Review and The After Dark Connection." Link-Up. 1(2):54-56.

Franzmeier, Steve. 1983. "The Modem on a Chip". Link-UP. 1(2):26-27.

Franzmeier, Steve. 1983. "'Ma' Bell's System". Link-Up. 1(1):18-22.

General Videotex Corporation. 1984. The Delphi Handbook. General Videotex Corporation. Blackstone, Ma.

Glossbrenner, Alfred. 1983. The Complete Handbook of Computer Communications. St. Martin's Press, New York.

Hopping, Lorraine. 1983. "Pennsylvania: A Statewide Networking System." Electronic Learning. May/June, pp.34-36.

Hoskins, Rick. 1983. "Communication Protocols." Link-Up. 1(2):20-21.

Janke, Richard. 1983. "The Birth of Online Self-Service." Online. September, pp. 12-29.

Levin, James A. 1980. "Interpersonalized Media: What's News?" Byte June: 214-228.

Levy, Joann. 1983. "A Visit with Dow Jones." Softalk. October, pp. 250-256.

Levy, Steven. 1983. "The Great Electronic Novel." Popular Computing. 2(8):84-88.

Levy, Steven. 1984. "Dead Letters: Why Our Columnist Prefers SourceMail to CompuServe's E-Mail." Popular Computing. 3(5): 56-62.

McClain, Larry. 1982. "Getting Magazines from a Menu, Not a Newsstand." Popular Computing. 2(1):142-147.

McDermott, Brian. 1983. "Chat and CB." Link-Up. 1(2):17-19.

McDermott, Brian. 1983. "Looking at Modems." Link-Up. 1(1):15-17.

Miastkowski, Stan. 1982. "Modems: Hooking Your Computer to the World." Popular Computing. 2(1):88-92.

Miller, Darby. 1983. "Videotex, Science Fiction or Reality?" Byte. July, pp. 42-56.

Moss, Carol. 1983. "What is a Modem?". Link-Up. 1(2):22-24.

Moss, Carol. 1984. "Online Learning." Link-Up. 1(4):13-14.

Moss, Carol. 1984. "Online Encylclopedias." Link-Up. 1(5):38-41.

Murphy, Brian. 1984. "Telecommunications Talk." Creative Computing. 10(2):226-226-230.

Ojala, Marydee. 1983. "Knowledge Index: A Review." Online. September, pp. 31-34.

Phillips, Roger. 1982. "A Public Access Videotex Library Service." Online. September, pp.34-39.

------. 1983. "Pictorial Guide to Serial Data Transmission." Link-Up. 1(2):40-41.

Pietro, Deborah. and Michael Kremin. 1983. "The School Practices Infromation Network and File (Spin/Spif): Information Services for Education." Online. January, pp.51-57.

Roberts, Steven K. 1983. "Online: A Smorgasbord of Services." Today. 2(12): 24-48.

Roberts, Steven K. 1984. "Information Brokers: The Online Free-Lancers." Online Today. 3(3): 28-30.

Rubin, Charles. 1984. "Touring the On-Line Databases." Personal Computing. January, 1984. pp. 82-95.

Scanion, Robert G. 1982. "Computer Revolution and Resource Sharing: Bridges to Better Schools." T.H.E. Journal. 9(4):77-82.

Slatta, Richard. 1984. "Teleresearch on Campus." Link-Up. 1(7):50-52.

Source Telecomputing Corporation. 1984. The Source Manual. Source Telecomputing Corporation. McLean, Va.

Sovner, Judi. 1982. "Search Assistance: A Current List of Database Publisher Telephone Numbers." Online. May, pp. 62-65.

Stultz, Larry W. and Jeffrey R. Williams. 1983. Using Computer Information Services. Howard W. Sams Co. Inc. Indianapolis.

The, Lee. 1983. "Data Communications: A Buyer's Guide to Modems and Software." Personal Computing. 7(3): 96-101,171-175.

Thompson, Vincent, Mike Brown and Chris Knowles. 1982. Videotex in Education: A New Technology Briefing." Council For Educational Technology. London.

Vaughan, Jerry L. 1982. "Computers and Telecommunications. A Survey of the Status, Characteristics, and Implications of the Information Society." An Element of the Accreditation Self-Study at the College of the Mainland, Texas City, Texas. Eric Document ED 226 708.

Woolfe. Roger. 1980. Videotex: The New Television-Telephone Information Services. Hayden and Son Ltd. London.

Wrege, Rachael. 1982. "Dow Jones News/Retrieval Service." Popular Computing. September, pp.138-140.

Yuen, Matt. 1983. "Keys to the World." Softalk. 4(2):135-138.

Yuen, Matt. 1984. "Keys to the World Part 2". Softalk. February, pp.90-94.

Zarley, Craig. 1983. "Dialing Into Data Bases." Personal Computing. December, pp.135-139.

Appendix A removed

due to copyright restrictions.

APPENDIX B:

ACCESS TELEPHONE NUMBERS FOR COMPUTERIZED

BULLETIN BOARD SYSTEMS (CBBS'S)

ACCURATE TO 5/5/1984

OLCTD
Department 649
J.A. Cambron Co. Inc.
P.O. Box 10005
Kansas City, MO 64111
BBS Number (913) 649-1207 (24 HOURS 300-1200 baud operation).

NOTE: feel free to upload BBS information to this system. Protocols available include Prompted ASCII, XON/XOFF and MODEM. Uploading can be done in the (D)irectory or (T)ext command area

Listings in the directory are free of charge.

Glossary of acronyms:

ABBS = Apple Bulletin Board System. B-80 = Bullet-80.
BBS = Bulletin Board System. CBBS = Computer Bulletin Board System (trademark of Ward and Randy's BBS software).
C-Tree = Communitree. FORUM = FORUM-80. N-W = Networks.
PMS = People's Message System. RBBS = Remote Bulletin Board System (usually in refernce to an RCPM system). RCPM = Remote CP/M. UG (as in HUG, IBM-PCUG, etc.) = Users Group.

Use Code legend:
rb = ring-back system. Let phone ring once, then call back. The telephone is also used for voice communications. One ring indicates to the system operator that the next call is a data call instead of a voice call.

so = sexually oriented. System deals in sexually-oriented topics such as computer dating, humor, or alternate lifestyles.

* = twenty-four hour operation except for periods of system maintenance.

! = new number. System is a new listing or has a new telephone number.

+ = 1200 baud 212a-standard operation. System also accepts 300 baud 103-standard calls.

? = Telephone number constantly busy, system believed to be in operation.

Telephone Number	Use Code	location (City, State)	System Information (operator, etc.)
201 272 1874	*	Cranford, NJ	RCPM RBBS
201 486 2954	*+	Linden, NJ	Ed Feins Mod 4 hard disk TBBS
201 494 3649		Metuchen, NJ	TBBS Metuchen
201 572 0617	so	New Brunswick, NJ	Limerick BBS
201 584 9227	*	Flanders, NJ	MCBBS K. Stritzel RCPM
201 627 5151	*	Rockaway, NJ	C TREE Flagship
201 667 2504	*+	Nutley, NJ	C. Amlung C-80
201 694 7425	*+	Wayne, NJ	Ed Gelb's database System
201 697 9633	*	Elmwood Park, NJ	RATS NEST #1 Mike Friedman RATS
201 747 7301	ew	Unknown, NJ	Paul Bogdanovich RCPM
201 775 8705	*+	Ocean, NJ	S. Jersey Heath RCPM
201 790 6795	*	Haledon, NJ	Photo-80 Photography C-80
201 831 1042	*so	Haledon, NJ	APHRODITE EAST /Mark Lewus
201 932 3887		Piscataway, NJ	Rutgers U. PMS
201 994 9620	*?	Livingston, NJ	ABBS / N-W
202 635 5730	*	Washington, DC	WACS (type HELP WACS)
202 765 2161		Washington, DC	
203 521 1991	*+	unknown, CT	John O'Boyle BBS
203 629 4375	*	Greenwich, CT	EDUCATION 30 B-80
203 746 5763	*	New Fairfield, CT	TELCOM 7
205 288 1100		Montgomery, AL,	Answer Board TBBS
205 343 1933	+	Mobile, AL	FORUM
206 256 6624		unknown, WA	DYM #16
206 357 7400	*	Olympia, WA	RCPM
206 525 5410		Seattle, WA	Apple Crate ABBS
206 535 2837		Tacoma, WA,	TBBS NW Micronet System TBBS
206 692 8406	*+	Bremerton, WA,	80 US/Online Magazine TBBS
206 743 6021	?	Seattle, WA	NWWCUG Edmunds,
206 756 0448	*	Tacoma, WA	Corvus/LNW/Forth TBBS
206 759 0615	*	Tacoma, WA	C-Tree ! *
206 763 8879	*	Seattle, WA	Seacomm-80
206 883 0403	*	Redmond, WA	JCTS Tom Jaycox
209 638 6392	*	Fresno, CA	APPLE CORPS
209 739 1776	ew	Visalia, CA	Sequoia Computer UG ABBS
212 410 0949	*	Brooklyn, NY	N-W
212 423 4623	*	Queens, NY	COCO's Nest
212 441 3755	*	Woodhaven, NY	Rainbow Connection Rainbow Magazine
212 441 3766	*?	Woodhaven, NY	software download
212 441 5719	*	Woodhaven, NY	and reviews (3 TRS-80s with shared 20 meg hard disk
212 541 5975	so?	New York, NY	[illegible]#2 (nites only)
212 877 7703	+?	New York, NY	People-Links
212 986 1660		Manhattan, NY	TICKERSCREEN Max Ule & Co.

212 991 1664	*	Bronx, NY	Scanners C-80
213 329 3715		Unknown, CA	
213 331 3574	*	Los Angeles, CA	PMS
213 390 3239	so?	Santa Monica, CA	MMMMMM#1 (nites only)
213 394 5950	*	Los Angeles, CA	BBS B.R.
213 452 6111	so?	Marina del Rey, CA	MMMMMM#3 (nites only)
213 459 6400		Los Angeles	Pacific Palisades ABBS
213 618 8674	!	Torrance, CA.	Epson (pw=Toledo) 4 Rings RCPM
213 618 8800		Los Angeles, CA	CLEO (EMPLOYMENT ADS)
213 653 6398		Hollywood, CA	RCPM RBBS
213 701 7670		Northridge, CA	The Software Bank
213 799 1632	*	Pasadena, CA	RCPM
213 821 2257	so	Lawndale, CA	MMMMMM#4 (nites only)
213 840 8252	so	Burbank, CA	#7 DYM
213 881 6880	*	Tarzana, CA	Novation, Inc PW=CAT
213 980 5643	so	N. Hollywood, CA	Oracle
214 352 4147	*	Dallas, TX	Theta Labs CBBS
214 566 1374	*	Tyler, TX	TBBS
214 578 7041	*so	Dallas, TX	Fantasia
214 659 0387		Dallas, TX	Epson (pw=Epsonstc) 4 rings RCPM
214 723 2839		Palestine, TX,	RIGMATCH TBBS
214 742 1380	*+	Dallas, TX	DFW HUG (Heath) HBBS
214 769 3036	*+	Hawkins, TX,	MicroServe Downloading TBBS
214 931 8274		Dallas, TX	RCPM
214 985 8889	*	Dallas, TX	S.W. PC Users Group
215 256 6336	*	Harleyville, PA	Bullet-80
215 434 3998		Allentown, PA	HERMES 80
215 563 9213		Unknown, PA	Port Royal
215 563 9367	+	Unknown, PA	Port Royal
215 788 5614	!	Bristol, PA.	EPSON QX-10(pw=Epson) RCPM
215 836 5116		Cheltenham, PA	RCPM
216 645 0827	*+	Akron, OH	COMN 80
216 724 1963	*?	Akron, OH	Jay Feldman TBBS
216 724 2125		Akron, OH	Jim Combs TBBS
216 729 2769		Chesterland, OH	B-80
216 757 3711	ew	Poland, OH	Computer Applications Co. ABBS
216 779 1338		Cleveland, OH	ABBS
216 788 7910		Youngstown, OH	Larry Cadman's COCO
216 832 8392	*	Massillon, OH	PMS
216 867 7463	*	Akron, OH	RAUG (also on TELEX) PMS
216 875 4582	*	Louisville, OH	Micro Com
217 753 4309	*	Springfield, IL	Word Exchange MCMS
217 875 7114	*?	Decatur, IL	C A M S N-W
218 727 2184	*+	Duluth, MN	N.E. MINN. NET N-W
219 239 5875	*rb?	Notre Dame, IN	Leprechaun Apple 2, SMB Corvus, Education
301 371 6271	*+	Frederick, MD	Gary Horwith, MD RBBS-PC
301 424 5817	*+	Potomac, MD	Doug Thompson HOST
301 460 0538	*+?	Bethesda, MD	Fed/Medical SIGs RBBS-PC

301	465 3176		Ellicott City, MD	PMS
301	593 7033	*	Silver Spring, MD	Handicap Education Exchange (Baudot/ASCII)
301	653 3413	ew	PMS Pikesville, MD	
301	661 2175	*	Towson, MD	Chris Turek/Zenith 100 RBBS
301	948 9143	*+	Gaithersburg, MD	Jim Fry RBBS-PC
301	949 8848	*+?	Rockville, MD	Rich Schinnell HOST
301	953 3753	*	Laurel, MD	RBBS RCPM
301	974 4987	*	Severna Park, MD	CARNIVAL The Computer Forum Atari
301	986 8085	+	Chevy Chase, MD	Washington, DC Apple Pi HQ Sys. WAPABBS
303	279 5657	ew	Golden, CO,	T. Mark Ehr II RBBS-PC
303	367 1935	*?	Unknown, CO	Bernard Saulter TBBS
303	423 3224	*	Denver, CO	DENHUG (Heath) HBBS
303	499 9169	ew	Boulder, CO	RBBS RCPM
303	598 4662	*	Colorado Spngs, CO	CSHUG (Heath Arvada Electronics HBBS
303	632 3391	*	Colorado Spngs, CO	Old Colo. City TBBS
303	690 4566	*+	Aurora, CO	TBBS Headquarters TBBS
303	691 0169	so	Unknown, CO	Adult BBS
303	751 8653	*	Unknown, CO	Info. Central TBBS
303	755 5380	*+	Denver, CO	dBMS #2
303	767 5533	?	Unknown, CO	Bruce Sonnenfeld TBBS
304	599 0760		Morgantown, WV	Wallace Colyer's COCO
305	246 1111	*+	Homestead, FL	BBS Homestead U.G.
305	261 3639	ew	Byte Shop Miami, FL	Kayypro 10
305	266 1032	*+	Unknown, FL	Tech 80
305	268 8576	*+	Titusville, FL	Astronomy RCPM
305	391 3653	*	Boca Raton, FL	Infoex 80
305	426 8080	*	Pompano Beach, FL	Trade 80
305	453 6561		Unknown, FL	Spacecoast 2 Greene Mach.
305	475 9062		Deerfield Beach, FL	Oracle
305	525 1192	*+	Ft. Lauderdale, FL	H.Q. System Trade 80
305	588 0487		Palm Beach, FL	Cecil's Nite Owl
305	625 3181	*	Unknown, FL	Southern Micro RBBS
305	665 0713	*+	Homestead, FL	BBS
305	677 8086	*+?	Orlando, FL	RCPM RBBS
305	683 6044	*	W. Palm Beach, FL	R.S. Computer Center Infoex 80
305	686 3695		W. Palm Beach, FL	MICRO 80
305	686 4862		W. Palm Beach, FL	NOTEBOOK for writers
305	830 4340	*+?	IBM-PC, Orlando, FL	IBM-PC RCPM RBBS
305	842 2687		N. Palm Beach, FL	Music
305	848 3802		W. Palm Beach, FL	ABBS
305	940 8795		Unknown, FL	Heath Bar
305	947 7930		Miami, FL	Trade-80 of Miami
305	948 8000	*	Miami, FL	Big Apple N-W
312	267 2066	*+	Chicago, IL	New North Pk HOSTCOMM
312	323 3741	*	Hinsdale, IL	Chipmunk N-W
312	326 4392	*	Bridgeport, IL	RCPM
312	351 4374		Unknown, IL	W.A.C.O. MCMS

312	359	8080	*+?	Palatine, IL — RCPM
312	359	9450	*	Palatine, IL — Public BBS System
312	397	8308	*	Palatine, IL — OS-9 6809 Users Group PW=HELLO G500,,3.
312	436	4849		Chicago, IL — GABBS 80 #2
312	462	7560	*	Wheaton, IL — P.C.M.S. MCMS
312	469	2597	*+	Glen Ellyn, IL — Jim Mills RCPM
312	475	4884	*	Evanston, IL — Gamemaster ABBS
312	545	8086	*+	Chicago, IL — #1 CBBS
312	587	3084	ew	Fox Lake, IL — Warlock's Den 2 (VIC)
312	740	9128		Round Lake, IL — L.A.M.S. MCMS
312	759	9191	*?	Bolingbrook, IL — Bar Trac Home Video/ Computers Mail Order (Chicago only) ABBS
312	773	3308		Ithasca, IL — Nessy ABBS
312	795	0871	*	Berwyn, IL — Vic BBS (VIC-20)
312	848	3669	*	Oak Park, IL — TI 99/Chicago
312	849	1132	*	Dolton, IL — Ward's CPMUG CBBS
312	852	1305	ew	Downers Grove, IL — Heathkit Msg. RCPM
312	882	2926	*	Schaumberg, IL — CODE ABBS
312	882	4227	*+?	Chicago,IL — Gene Plantz RBBS
312	882	5766	*	Schaumberg, IL — S.A.M.S. MCMS
312	897	9037	*	Aurora, IL — Aurora Computer Periph. TBBS
312	927	1020	*+	Chicago, IL — CAMS MCMS #1
312	942	0089		Chicago, IL — Univ. Conferenece Info. Net. C-Tree
312	960	0308	*	Downers Grove, IL — Downers Grove/SRT PMS
312	972	1974		Unknown, IL — UNKNOWN BBS N-W
312	972	6979		Argonne, IL — EI Division RCPM
313	261	0885		Livonia, MI
313	343	0877		Unknown, MI — Bit Bucket
313	348	4479	*	Detroit, MI — Westside Download
313	459	8375		Unknown, MI — E.T. Space Station
313	535	9186	*rb	Detroit, MI — MCBBS PW=SORCERER RCPM
313	559	5326	*	Southfield, MI — RBBS RCPM
313	623	1089	*?	Unknown, MI — Bob Leffler TBBS
313	628	4350	*	Waterford, MI — Dennis Black TBBS
313	736	1398	so	Flint, MI — DYM #37
313	754	1131		Warren, MI
313	759	6569	rb?	Royal Oak, MI — MCBBS Keith Petersen RCPM
313	761	1399	*+	Ann Arbor, MI — RBBS-PC
313	775	1649	*	Warren, MI — Twilight Phone #1
313	846	6127	*+	Dearborn, MI — MCBBS TCBBS RCPM
313	855	6321	*?	W. Bloomfield, MI — T-NET Special Corp
313	856	3804	*	Toledo, OH — Crystal Castle Gaming N-W
313	978	8087	*	Sterling Hghts, MI — Arcade for Atari
314	227	4312	*so	St. Louis, MO — MIDWEST
316	663	3600	*	Unknown, KS — SALT CITY SWAPPER
316	665	3985	*	Hutchinson, KS — FORUM
317	494	6643	*+	Purdue, IN — FBBS #1
318	463	3371	*	Deridder LA — Silver COCO OCCCS
318	861	1012	*	Shreveport, LA — Apple Gumbo N-W
319	353	6528		Iowa City, IA — Apple Med ABBS
319	364	0811	*	Cedar Rapids. IA — CBBS

401	272	1138	*	Providence, RI	BBS Syslink
401	521	2626	*?	Providence, RI	BBS Colornet (nites only)
401	944	4689		Unknown, RI	R.I. TANDY U.G.
402	476	1177	*	Lincoln, NE	LINX ABBS
402	551	4618	*?	Omaha, NE	Food for Thought GABBS
402	734	4748	*?	Omaha, NE	Mages Inn
403	454	6093	*+?	Edmonton, Alb., CN	Dave McCrady RCPM
404	252	9438	*?	Atlanta, GA	IBM PC
404	733	3461	*	Atlanta, GA	AGS ABBS
404	891	0136		Ringold, GA	Dennis Womack 6809-based systems
406	245	9033	*+	Winter Park, FL	Corsair G-MACH
406	443	2768		Helena, MT	Helena Valley RCPM
408	238	9621	*	San Jose, CA	RCPM Piconet #3 Datatech
408	253	5216	*	Cupertino, CA	AMIS GRAFEX Inc. HQ system
408	263	2588		San Jose, CA	Colossal Oxgate RCPM
408	298	6930	?	San Jose, CA	AMIS IBBBS
408	338	9511	*?	Boulder Creek, CA	Stuart I H. disk Apple
408	354	5934	*+	Saratoga, CA	Oxgate 001
408	378	8733	*	San Jose, CA	RCPM DBASE II,
408	475	7101		Berkeley, CA	C-TREE
408	688	9629	*?	Santa Cruz, CA	PMS
408	732	9190		Sunnyvale, CA	Silicon Valley CP/M RCP:;
408	734	8727	ewso	unknown, CA	Gendernet
408	926	8767	*	San Jose, CA	Caltex 99
408	997	2790	*	San Jose, CA	Computers For Christ TBBS
409	845	0509	*	College Station, TX	Oxgate*
412	822	7176	*	Pittsburgh, PA	PACC CBBS
413	594	2524		Chicopee, MA	TBBS WMCC Info Service
413	733	1749		Springfield, MA	W. MA Computer Club TBBS
414	241	8364	*?	Milwaukee, WI	MAUDE CBBS
414	259	9475	?	Milwaukee, WI	Big Top Game System RCPM
414	281	0545	*	Greenfield, WI	TBBS ST 80 CANOPUS
414	354	7433	*+?	Milwaukee, WI	Bob Mahoney RBBS-PC
414	554	9520		Racine, WI	PET BBS S E W P U G
414	645	6849	*	Milwaukee, WI	BBS SUE (Serious Users Exchange)
415	223	4579	*	El Sobrante, CA	Datatech
415	332	8115		Sausalito, CA	C-TREE
415	352	3275		San Leandro, CA	The Dead Zone
415	357	1130	*	San Leandro, CA	Proxima CBBS
415	452	0350		Oakland, CA	OMEGA 80 Sunrise
415	462	7419	*	Pleasanton, CA	PMS
415	467	2588	so?	San Francisco, CA	#10 DYM
415	469	8111	so?	San Francisco, CA	South of Market ABBS

415 489 0388	+	Union City, CA	The Disk Byters
415 538 3580		Hayward, CA	C-TREE
415 552 9968	*	San Francsico, CA	Rich & Famous
415 595 0541	*+$	San Mateo, CA	Datanet (Hq) RCPM
415 651 4147	*+	Fremont, CA	AARDWOLF-EXPRESS College financial aid search services TBBS
415 658 2919	so?	Berkeley, CA	LAMBDA Koala Bear CBBS
415 673 9571	*	San Francisco, CA	Apex Information Sys.
415 689 2090	*+	Concord, CA	Jon Martin AC+RBBS-PC
415 775 2384	?	Unknown, CA	Pirate's Bay
415 782 4402		San Leandro, CA	SYSTEM 80 Steve/Cathy
415 829 8691	*+	San Ramon, CA	Norm McMullen RBBS-PC
415 861 6489		San Francisco, CA	C-TREE #1
415 897 0421		Novato, CA	Bullet 80
415 897 2783	?	Novato, CA	Golden State BBS Greene Machine
415 927 1216	ew+	San Rafael, CA	Don Watkins RBBS-PC
415 937 0156	*+?	Walnut Creek, CA	Wes Meier RBBS-PC
415 948 1474		Los Altos, CA	PCNET C-Tree
415 968 5140		Unknown, CA	
415 974 6559	*+	unknown, CA	John Summers RBBS-PC
415 991 4911	so?	Daly City, CA	#17 DYM
416 231 1262	*+	Toronto, Canada	Jud & Colleen Newell System Two RCPM
416 232 0269	*+	Toronto, Canada	Jud & Colleen Newell System Three RCPM
416 232 0442	*+?	Toronto, Canada	Jud & Colleen Newell System One RCPM
416 429 6044	*?	Toronto, Ont., CN	PET BBS TPUG
416 445 6696	*	Toronto, CN	N-W
416 499 7023	*?	Toronto, Canada	Doug Peel ID# PC250 PW=IBMPC HOST
416 640 3434	*?	Unknown, CN	Greg Small TBBS
417 869 5294	*+	Springfield, MO	Computer Matrix 5M HD TI & Commodore SIGs TBBS
419 245 6028	*	Toledo, OH	Blade Board System TBBS
419 245 6030		Toledo, OH	Toledo Blade Newspaper VIDEOTEX
419 536 5474	*	Toledo, OH	CCIBBS Pet/Commodore PBBS
419 537 1888	+	Toledo, OH	Heath HBBS RBBS
419 537 9508	*?	Toledo, OH	AT BBS Apple II
419 666 5790	*	Toledo, OH	BULLIT TRS 80 M. III
419 729 4221	*	Toledo, OH	Heath H-8, H/DOS R. Zarick
419 866 0345	*	Toledo, OH	Friendly Midnight Express (Apple lookalike)
501 372 0576		Little Rock, AR	C-80
501 646 0197		Ft Smith, AR	Ft. Smith Computer Club PMS

502 459 5531 ew	Louisville, KY	Assembly Line N-W
503 230 1041 *	Portland, OR	BACK WATER Mike Day
503 245 2536 *	Portland, OR	PMS
503 284 5260 *+	Beaverton, OR	CBBS N.W. Altair S-100 CBBS
503 343 4352 *	Eugene, OR	ACE (Atari) M. Dunn
503 344 2552	Eugene, OR	MICRO 80 USER'S GROUP
503 535 6883 *	Medford, OR	Jackson Computer Society FORUM
503 646 5510 *+	Beaverton, OR	CBBS N.W. 512K Semidisk emulator
503 754 1376 *	Corvallis, OR	Microtext VideoTex service (advertiser supported)
503 760 7609	Portland, OR	L. Dixon N*
503 761 6345 *	Portland, OR	BIT BUCKET BBS R. Bensene
504 273 3116 *	Baton Rouge, LA	CBBS
504 291 4331	Baton Rouge, LA	LNW Southeast TBBS
504 926 0181 *	Baton Rouge, LA	Baton Rouge Data System TBBS
509 327 9457 *	Spokane,WA	First Atari Club of Spokane (ATR-8000)
509 582 5217 *	Kenniwick, WA	A2 D2 BBS (Atari)
512 285 5028 *	Elgin TX	COCO/Mod 1/VIC-20
512 349 6166	San Antonio, TX	SAHUG Heath
512 385 1102	Austin, TX	TBBS of Austin TBBS
512 433 6790 ?	San Antonio, TX	Night Owl
512 442 1116 *	Austin, TX	Austin Party Board
512 643 8173	Unknown, TX	SUPERNET 80 C. Beaty
512 653 3981	San Antonio, TX	SCSNET
512 655 5911 so?	San Antonio, TX	DYM
512 655 8143 so	San Antonio, TX	Bathroom Wall BBS
512 684 6216	San Antonio, TX	TBBS
512 733 3339 ?	San Antonio, TX	TSSBBS
512 734 6479 ?	San Antonio, TX	Cole's elec.
513 277 3019	Dayton, OH	THE CHOYCE
513 435 5201 *	Dayton, OH	W. Carrolton RCPM
513 621 9273 ew	Cincinatti, OH	Software Plus Online New software info. Apple, IBM, Commodore
513 631 3332 *+	Cincinnati, OH	Komputer Klassified TBBS
513 671 2753 ew	Cincinatti, OH	Comm-Line
513 734 1146	Cincinatti, OH	Micrologic
513 742 1895 *	Cincinatti, OH	CO-CO connection
513 742 2983 *	Cincinatti, OH	CINTUG (Radio Shack)
513 772 6190 *+	Cincinatti, OH	CHINCHBUG (Heath)
513 831 5330 *+?	Cincinatti, OH	Abacus Info. Exch.
515 224 1801 ew	Des Moines, IA	C.E. Software (Apple)
515 232 9277 ew	Des Moines, IA	Health BBS (Apple)
515 233 2620 *	Des Moines, IA	Beacon (Apple)
515 265 8358	Des Moines, IA	This is it system

609	448 8244		Heightstown, NJ	BBS Gandalf #2
609	468 5293		Wenonah, NJ	RATS
609	693 8849		Forked River, NJ	Jersey Shore TBBS
609	853 8268		Wenonah, NJ	RATS #2
609	894 4366		Pemberton, NJ	Jim Jones
609	896 2436	*	Lawrenceville, NJ	Delta Connection
612	571 5965	*	Minneapolis, MN	Loki's Net ABBS
612	724 7066	*?	Minneapolis, MN	The Safehouse ABBS
612	753 3082		Minneapolis, MN	Goliath MCMS
612	778 1213		St. Paul, MN	Heath HBBS
612	869 3246		Minneapolis, MN	TCTUG Computer Place
612	929 6699	*?	Minneapolis, MN	PMS
612	929 8966	*	Twin Cities, MN	Pete the Hermit PMS
614	272 2227	*?	Columbus, OH	RCPM
614	475 9791	*	Columbus, OH	Apple Crackers N-W
615	528 5039	*	Cookville, TN	C-TREE
615	842 6809		Hixon, TN	68 Micro Journal
615	847 2930		Nashville, TN	FORUM
615	889 8284	*	Nashville, TN	(TRS 80 based)
616	241 1971	*	Grand Rapids, MI	AMIS G R A S S
616	538 1041	+	Grand Rapids, MI	Heath/Zenith HBBS
616	731 5330	*	Augusta, MI	Club 3000 Commodities PW=LIMITUP
616	956 9553		Grand Rapids, MI	Tom Mix Software
617	237 1511	?	Wellsley, MA	HBBS
617	259 0181	*	Lincoln, MA	The Outpost TBBS
617	266 7789	*+	Boston, MA	B-80
617	334 6369	so	Lynfild, MA	#18 DYM
617	423 6985	*+	Boston, MA	Boston Information Exchange
617	444 5401		Needham, MA	CBBS
617	497 6641	*	Cambridge, MA	Trash Bin Jon Toner
617	531 9332	*	Peabody, MA	HUG North Shore HBBS
617	683 2119	*	Boston, MA	Lawrence General Hospital CBBS
617	692 3973	*	Westford, MA	Small Business Systems Group FORUM
617	720 3600		Boston, MA	Pirate's Harbor N-W
617	891 1349	?	Unknown, MA	Pirate's Chest NCW
617	863 0282	+	Lexington, MA	TermExec On-Line Newsletter
619	256 3914	*$	Barstow, CA	RCPM
619	265 3428		San Diego, CA	Ed. Technology San Diego State U. PMS
619	268 0437	*?	San Diego, CA	BBS IBM PC SIG
619	271 8613	*	San Diego, CA	Datel Systems PMS
619	273 4354	*+$	San Diego, CA	RCPM
619	278 9114	*	San Diego, CA	Warelords Board Apple
619	434 4600	so?	San Diego, CA	#11 DYM
619	461 5117	*	La Mesa, CA	SDCS HEC#04 RCPM
619	561 7271	*	Lakeside, CA	"PMS" ID=GUEST pw=PASS ONLINE
619	561 7277	*	Santee, CA	Bill Blue mail/info exch only #1

619 578 2646	*?	San Diego, CA	Kid's Message System
619 582 9557		San Diego, CA	Computer Merchant PMS
619 691 8367	*	Chula Vista, CA	T-Net CVBBS
619 692 1961	*?	San Diego, CA	Saba ONLINE
619 746 0667	*ew	Escondido, CA	PMS
619 755 5006	?	Del Mar, CA	Teen-Line PMS
702 826 7234		Reno, NV	SIGNON <pswd=FREE>
702 870 9986	+	Las Vegas, NV	Comnet 80
702 878 9106	*	Las Vegas, NV	Century 23 PMS
703 352 3822	*+	Fairfax, VA	Multiuser IBM-PC w/Multilink OS
703 360 3812	*	Fairfax, VA	C HUG Bulletin Board
703 385 8384	ew+	Fairfax, VA	BBS IBM Hostcomm
703 471 0610		Herndon, VA	Software Sorcery #1 ABBS
703 471 0611	*	Herndon VA	Magus
703 560 0979	*?	Annandale, VA	IBM PCUG
703 560 7803	*	Vienna, VA	IBM PC
703 590 9613	*	Dale City, VA	Bruce St. Cyr
703 670 5881	*	Woodbridge, VA	FORUM
703 734 1387	*?	Washington, DC	AMRAD CBBS
703 759 5049	*+?	Great Falls, VA	philosophy/religon RBBS-PC
703 765 2161	*	Alexandria, VA	Switchboard
703 836 0384	*	Washington, DC	TCUG BBS
703 978 9592	*+	Fairfax, VA	Don Withrow PW=IBMPC HOST
704 365 4311	*	Charlotte, NC	PC BBS (IBM & Apple)
707 257 6502	*	Napa Valley, CA	RCPM
707 422 7256	*	Fairfield,CA.	S-100, CP/M, Ham Radio Atari, IBM RCPM
707 527 5908		Santa Rosa, CA	BBS-16
707 538 9124	*	Napa Valley, CA	Grape Line (3rd ring)
712 368 2656		Holstein, IA	LITHO/NET Typesetting
713 331 2599	*+	Houston, TX	Freelancin' TBBS
713 438 2247	*	Missouri City, TX	Blue Ridge RCPM
713 453 7931	*	Houston, TX	SOBBS Poor Man's BBS
713 455 9502	?	Houston, TX	Madam Bokeatha Society GABBS #1
713 468 0174	?	Houston, TX	Jolly Roger NW
713 488 2003	*+?	Houston, TX	Freelancin' TBBS
713 492 8700	*?	Houston, TX	Weekender N-W
713 497 5433	ew	Houston, TX	Amateur Radio RCPM
713 522 5516	?	Houston, TX	SOBBS Test Mode
713 633 8254	*+?	Kingwood, TX	Kent Galbraith RBBS-PC
713 660 9252		Houston, TX	SOBBS Test Mode
713 772 6096	*?	Houston, TX	Vox Populi GABBS
713 777 8608	*?	Houston, TX	Shadow World N-W
713 871 8577	*?	Houston, TX	Mines of Moria N-W
713 933 7353	*	Houston, TX	Zachary-NET N-W
714 354 8004		Riverside, CA	Greene Machine
714 359 1586	*	Riverside, CA	The Growth Net TBBS
714 534 1547		UnKnown, CA	Amateur Radio
714 537 7913	*	Garden Grove, CA	Orange County Data Exchange
714 538 3103	?	Orange County, CA	Adventures Tavern

714 551 4336	?	Irvine, CA	Irvine Lire G MACH
714 772 8868	*	Anaheim, CA	"IF" Video systems PMS
714 774 7860	*?	Anaheim, CA	RBBS ANAHUG RCPM
714 824 2129	*+	Highland, CA	TBBS
714 857 2470	so	Brea, CA	#29 DYM
714 877 2253	+?	Riverside, CA	COMN 80
714 924 2229	*	Sunnymead, CA	GREENE MACHINE
714 961 1135		Orange County. CA	North Orange County Computer Club
714 983 9923	*	Ontario, CA	Computers for Christ
715 352 2093		Edgar, WI	TBBS-Wausau TBBS
715 848 3415	*	Wausau, WI	Personal Computer Comm TBBS
716 631 8845		Amherst, NY,	Western New York TBBS
717 774 6543		Camp Hill, PA	CAPTUG BB
803 279 5392	*	North Augusta, SC	FORUM
803 548 0900	*	Fort Mill, SC	RBBS Bill Taylor RCPM
804 220 0003	*?	Unknown, VA	Duane Saylor TBBS
804 491 1437	*	Virginia Beach, VA	Atari BBS
804 543 7194		Unknown, VA	
804 898 7493	*?	Grafton, VA	RCPM
805 492 5472	*&?	Thousand Oaks, CA	Technical RCPM
805 527 2219		Simi Valley, CA	RCPM
805 687 9400		Santa Barbara, CA	Jim Ledoux's COCJ
805 964 4115	*?	Santa Barbara, CA	
806 353 7484	ew+	Amarillo, TX	Dorn Stickle RBBS-PC
806 374 9711	?	Amarillo, TX,	Burg Board TBBS
806 379 6011	*+	Amarillo, TX	Pirates' Isle/The Ouija Board Users Group/ Fantasy Gaming TBBS
807 622 2685	?	Unknown, Ont. CN	Gary Walsh TBBS
808 487 2001	*	Honolulu, HI	Computerland N-W
808 944 0562		Honolulu, HI	Strictly Software CBBS
812 479 8420	*+?	Evansville, IN	IBM PC Downloading Apple/IBM/CPM HOSTCOMM
813 345 8100		Tampa, FL	Rainboard #2
813 488 1154	*+	Venice, FL	Sarasota On Line TBBS
813 525 7998		Tampa, FL	TI-BBS
813 688 7238		Unknown, FL	Synapse N-W
813 734 7103		Tampa, FL	Bradley Computer BBS
813 831 7276		Tampa, FL	RCPM
813 884 1506	*	Tampa, FL	Micro Informer Access 80
813 885 6187	*	Tampa, FL	Buddy's Super BB
813 969 0512	*	Tampa, FL	ALPHA (Acct=ABCD00 PW=TRYIT)
813 985 0627	?	Tampa, FL	Micro Informer
814 238 4857	*	State College, PA	CUG NODE Penn. State College RCPM
815 455 2406		Crystal Lake, IL	Nessy Flynn's ABBS
815 838 1020	*	Lockport, IL	J.A.M.S. MCMS
816 257 2502	*	Independence, MO	KCCUG PET/VIC-20/C-64
816 331 5868	*	Belton, MO	Howard's notebook Commodore

816 331 7023	*	Belton, MO	YCC APPLE
816 353 0442	*	Independence, MO	Tom*s Computer Room TRS-80 Custom ROM-Oriented BBS Software
816 356 6538	*	Kansas City, MO	Law Enforcement Net. TBBS
816 363 1663	*	Kansas City, MO	Sam's ATARI
816 461 7635	*	Independence, MO	Elite ANTWARE ATARI
816 483 2526	ew	Kansas City, MO	Allen Bros. Computers N-W
816 523 0304	*	Kansas City, MO	Apple Bits UG PMS
816 587 1947	*	Kansas City,MO	His Majesty's Chamb. N-W
816 587 9543	*	Kansas City, MO	KCABBS Atari AMIS
816 833 3427	*+	Independence, MO	Bill Bell RBBS-PC
816 931 9316	+	Kansas City, MO	(Commodities) FORUM
817 244 4151		Fort Worth, TX	Soft Term. N-W
817 485 1892		Unknown, TX	NTACT Atari AMIS
817 526 5915		Kileen, TX	Tele-Med Comm TBBS
817 767 5847	*	Wichita Falls, TX	Comnet 80
818 988 8373	*+?	Van Nuys, CA	LA ACE BBS (ATR-8000) Atari public domain software
901 276 8196	*	Memphis, TN	Medical FORUM
901 356 8227	*?	Memphis, TN	TBBS
901 761 5018		Memphis, TN	ONLINE 80
904 353 5227	*	Jacksonville, FL	JACS C-80
904 725 4995	*	Jacksonville, FL	JUG (Heath) HBBS
904 743 7050	ew	Jacksonville, FL	SEB Computers ABBS
907 344 8558		Anchorage, AK	PMS
913 262 0058	*	Mission, KS	Atari AMIS
913 273 6325	*	Topeka, KS	hard disk, sports trivias/video TBBS
913 341 3502	*	Overland Park, KS	Apple Bits UG PMS
913 362 9583	*+	Mission, KS	Heathkit ZRCP/M
913 375 9598	*	Kansas City, KS	Computer Flea-Market BUY, SELL, TRADE AND WANT ADS ONLY
913 381 1021		Overland Park, KS	YCC PMS
913 384 2196	*	Prairie Village, KS	Beta Sigma PHI TBBS
913 432 5544	*	Mission, KS	Dickinson's Movie Guide RCPM
913 642 1743	*	Overland Park, KS	Big T ATARI
913 648 5301	*	Kansas City, KS	Micro II APPLE
913 649 1207	*+?	Overland Park, KS	OLCTD Bulletin Board Information Exchange (BIE) TBBS
913 722 2031	ev	Mission, KS	Computertrend APPLE
913 782 6005	*	Olathe, KS	John Swander's Homebrew BBS TRS 80 MOD. 1
913 782 3282	*+	Olathe, KS	Radio Shack Mkting/ FORUM-80 H.Q. System

913 842 5749		Lawrence, KS	IBM PC BBS
913 843 4259	ew	Lawrence, KA	AlphaNet RCPM
914 221 0774	*?	Hopewell Jct.,NY	John Giberson RBBS-PC
914 297 0665	*	Poughkeepsie, NY	B-80
914 679 6559	rb	Bearsville, NY	SJBBS RCPM
914 679 8734	*+	Woodstock, NY	RCPM
915 533 7039		El Paso, TX	ABBS
915 565 9903	*	El Paso, TX	B-80
915 598 1668		El Paso, TX	RCPM
915 755 1000	*	El Paso, TX	FORUM
916 971 1395	*	Sacramento, CA	Don Mankin TBBS
918 438 3363	*?	Tulsa, OK	Tulsa Info Exchange TBBS
918 749 0059	*	Tulsa, OK	TBBS
918 749 0718	*+	Tulsa, OK,	Lynn LONG RBBS-PC
919 274 3305	*	Greensboro, NC	Smalltalk-80
919 362 0676	?	unknown, NC	DYM #20
919 386 8504		Dobson, NC	Father Nolan Atari AMIS
919 455 8025	?	Unknown, NC	Jonathan Whaley TBBS
919 723 5275	*+?	Winston-Salem, NC	Fantasy/Role Playing games TBBS
919 781 7047	*	Raleigh, NC	Smalltalk-80
919 847 4625	*+?	Raleigh, NC	Randy Ray PW=IBMPC HOST
919 922 3308	*+?	Tobaccoville, NC	Science fiction TBBS